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THE AMERICAN FARMER

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THE FENCE-CORNER.

American Farmer
1729 New York Ave
Washington, D. C.

GEO. E. HOWARD, DES & DEL.

FOR SALE, WANTS, EXCHANGES, ETC.

THE AMERICAN FARMER wants to become the medium of free communication of farmers with one another, and by which they can state their wants and have them supplied, the same as city people do in the daily papers. We have therefore established this column for the express use of subscribers to the paper. No others will be allowed access to it. The rates for advertising in it will be merely nominal—one cent a word each insertion. No "wants," "exchange," "for sale," or similar notices will be inserted more than twice. If desired oftener, it must go into the regular advertising columns at the usual rates. All our readers who want situations, or to employ help, or to exchange farming implements, stock, seeds, etc., are invited to use the column freely.

☞ In replying to these advertisements, please mention that they were seen in THE AMERICAN FARMER, of Washington, D. C.

TERMS: One cent a word each insertion. No notice to be inserted more than twice. No notice accepted at these rates except from subscribers to the paper.

FOR SALE—One No. 2 Appleton M'f'g Co. Prize Fuller Mill; one Gretener Corn and Cob Crusher; name trade. Price $65, f. o. b., for cash, for both mills. F. D. HEMENWAY, Isaacs P. O., Buncombe Co., N. C.

WANT TO BUY—Six good Jerseys, three to six years old. Address, with description, P. O. Box W, Holyoke, Mass.

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WANTED—A married man, sober, industrious, and handy, to work on nursery and farm, and to board men. References required. ARTHUR J. COLLINS, Moorestown, N. J.

WANTED—Two Protestant young men, good milkers, understanding cattle and farm work; also driving oxen. References required. Address MURRAY, Station D, New York City.

WANTED—Good man to take care of horses, stallions, harnesses, etc. Wages according to services rendered, starting with $20 per month and board. A. C. BURRIDGE, Carleton Place, Ont., Canada.

SITUATION WANTED—A married man, no family, thoroughly understands poultry-raising in all branches; also capable of taking full charge of dairy, dairy situation. Address P. O. BOX 308, Dobbs Ferry, N. Y.

SITUATION WANTED—As superintendent, manager, or assistant on a stock or large farm, by a middle-aged man of education and refinement. Writes a good hand, and is acquainted with book-keeping. Understands management of steam engine and boiler, windmills, pumps, and hydraulic rams, and is a good general mechanic. References, several banks and numerous business men. Address F. R., P. O. Box 194, Washington City, D. C.

FOR SALE—To close an estate. Farm of 40 acres, highly cultivated land, in Kennebec County, Me. Stocked with 20 head of thoroughbred Southdown sheep. Ten minutes' walk from post-office, in city of 8,000 inhabitants. For further particulars, address GEO. E. BOUTELLE, Waterville, Me.

WANTED—Man and Wife. Man to do general farm-work, wife to do general housework. To suitable parties a permanent home and good wages. F. L. PAYNE, Bailey's Cross Roads, Fairfax Co., Va.

WANTED—A Married Farmer for a Dairy and Truck Farm near Old Point Comfort, Va. He must be a good milker, if necessary. For an acceptable man liberal arrangements will be made for the future. Address, M. G. A., Hampton, Va.

AN AMERICAN, aged 45, good education, 15 years' experience with cattle—Jerseys, Ayrshires, Holsteins, and native—would like a situation with some party who patiently takes a pleasure and pride in his cattle, but also has an eye to profit. Best of references as regards sobriety, industry, honesty, and ability. Address, W. PARKTON, Baltimore County, Md.

FOR EXCHANGE—A Six-octave Gilbert Piano for fresh milch cows. 711 Madison street, Topeka, Kan.

WANTED—A second-hand Chain-fed Broom-corn Stripper. S. G. JOHNSTON, Warren, Sherman County, Kan.

FOR SALE—160-acre farm at a bargain. One-third cash, balance long time if desired. Four-room house, plenty of timber, living water, 45 acres in crops, close to town. With residence in same. Price $12 per acre. Also quarter section of grass land. Some stock and implements cheap. Address BOX 148, Toronto, Kan.

FOR SALE VERY CHEAP—A two-horse tread-power thrashing machine. Both power and seperator mounted on trucks. Only used two years on farm. It is in complete running order. Some extras and tally-box. Will thrash 300 bushels of wheat and 600 bushels of oats in reasonably good grain in one day; thrashes all kinds of grain, millet, and timothy. The power alone is worth all I ask for the entire outfit for many uses on the farm. It will twice pay for itself in one season. Will give time, with approved security, if desired. CRAWFORD MOORE, Tonganoxie, Kan.

A RARE BARGAIN—For sale a first-class hotel in A. a No. 1 manufacturing town, close to Chicago; full of people the year round. The right party can make big money. Would accept land in part payment. SANDWICH M'F'G CO., Kansas City, Mo.

32 Shropshire sheep for sale. C. A. WILEY, Yeder, Kan.

JERSEY CATTLE—On account of my age I will sell my A. J. C. C. herd of cows and heifers. First-class cattle of the equal and St. Lambert strains. Purebred St. Lambert bull at the head of herd. Address S. S. MATTHEWS, Box 116, Leavenworth, Kan.

FOR SALE—Five young full-blood Holstein-Friesian bulls, from three to 15 months old. Offered at prices that farmers can pay. Also a few choice cows and heifers, thoroughbred. This is a good opportunity to get good animals at reasonable cost. Write for particulars to J. GAMBLE, Elgyle, Kan.

FOR SALE—Young Holstein-Friesian bulls, good individuals, choice breeding. Also a three-year-old bull that I can doss being; dam imported. Price reasonable; cash or note; time to suit purchaser. M. H. ALBERTY, Cherokee, Kan.

FOR SALE—Eggs from first-class Light Brahmas, $1 per setting, or $1.50 for 30 eggs, and a few fine roosters yet at $1. MRS. N. VAN BUSKIRK, Bois Mound, Kan.

500,000 SWEET POTATO PLANTS—To sell during May and June, 1892. Nine best kinds. Inquire of M. M. PIXLEY, Wamego, Kan.

EGGS—Choice Light Brahmas, $1 per 15; $4.50 per 35. Wm. PLUMMER, Osage City, Kan.

FOR SALE CHEAP ON EASY TERMS—One of the nicest located and best improved farms in eastern Kansas. Also 6 full section under cultivation. For particulars and terms address the owner, C. H. PRATT, Humboldt, Kan.

WANTED—Horses or cattle in exchange for farm lands. Desirable homes wheap. GERALD PIERCE, Bismarck, N. D.

FOR SALE—Improved farm of 266 acres near Charlottesville, Va., 2½ miles from depot. Only $4,000; one-quarter cash, balance to suit. Splendid location for pedigreed stock, dairy, or fruit farm. Would take half payment in young breeding stock. Address GERALD McCARTHY, N. C. Experiment Station, Raleigh, N. C.

FOR SALE OR RENT—To responsible parties only, a few choice quarter or half-section farms in one of the best portions of the celebrated Valley of the Red River of the North. Terms cash or crop payments. For particulars address W. HINCKLE SMITH, Amenia, Cass County, N. D.

PERCHERON MARES—Having sold my farm I will sell at less than the cost of importing them 13 of the very finest three to five-year-old imported Percheron mares. A big bargain for someone. Must be sold at once. C. V. HOLDER, Bloomington, Ill.

FOR SALE—Registered Victoria Shorthorn Bull. LLOYD Z. JONES, Galva, Ill.

WANTED—An American man of experience to feed and care for 50 cows. Address, stating experience, wages required, whether married or single. BOX 67, Fayville, Mass.

I HAVE LEFT UNSOLD ten (10) high grade ewes, Cotswold, with lambs by their sides. Ewes will weigh from 100 to 140 pounds; lambs from 30 to 40 pounds. I will sell the lot for $70, delivered on board of cars at station. The first buyer takes the lot or any part of them; if for ewe and lamb, all young, two to four years old, and all perfectly healthy and in good stock condition. Address all letters to E. A. WHITCOMB, Wilkinsville, Mass.

FOR SALE—Two very good farms, 82 and 14 acres, respectively. Excellent crops and buildings. Price $4,800 and $1,300. Address Dr. JOHN F. HILLEGASS, Pennsburg, Montgomery Co., Pa.

FOR SALE—A good farm and mill site in Spottsylvania County, Va., including 300 acres of choice pine, oak, poplar, and other timber. Exceptional opportunity for enterprising party with some capital. For full description and plan of property address H. C. WOODMAN, Box 1372, Boston, Mass.

WANTED—A PARTNER with capital enough to buy wheat and mill flour for a 25-bbl. roller mill. I will give a good chance, and take small profit for grinding. It will pay to write me at once. V. B. KERR, Laurel Hill, Va.

WANTED TO SELL a half-interest in a 25-bbl. roller mill doing a first-class business in one of the best local milling sections in Pennsylvania. Has power for a 100-bbl. mill, thus having a large prospective value for a man who wishes to make a permanent investment. L., care of The Roller Mill, Buffalo, N. Y.

ENGINE WANTED, with boiler, 25 or 30 horse power, semi-portable style. Would be glad to buy a good second-hand engine of this sort. HITCHCOCK & HANEY, Hensonville, N. Y.

FOR SALE—The best 50-bbl. flour mill and in the best location in northwestern Ohio, including one acre of land and good dwelling house. Situated in the center of the thriving young city of North Baltimore, Wood Co., O., in the gas and oil belt. Gas for the steam plant costs $12 per month. Mill is kept busy on home trade. Will correspond with those who mean business only. G. G. ROCKWELL, care Roller Mill, Buffalo, N. Y.

MARES WANTED in exchange for Hereford cattle. Do not write unless you mean business. GOSSROVE LIVE-STOCK CO., Le Sueur, Minn.

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FOR SALE—Fine Stock Farm. About 110 acres, one mile from Aurora, Ill. Extensive barns (cement floors) and outbuildings. Windmill, scales, fruit, and shade trees. Large modern house. No exchange or agents. Apply to D. F. VAN LIEW, Aurora, Ill.

FOR SALE—One of the best country flouring mills in Missouri. Close investigation invited. For capacity, terms, etc., address HILBERT BRO., Grove Center, Mo.

FOR SALE—A first-class full roller mill. Situated in the best town in northern Iowa, with population over 3,000, and six railroads. Capacity of mill 50 barrels of wheat flour, 25 barrels of buckwheat, and one carload of feed. Latest modern machinery for both wheat and buckwheat. Mill doing good business now. For further particulars inquire of A. T. PARKER, Mason City, Iowa.

FOR SALE—Four red-polled bulls. Splendidly bred; recorded. Ready for service. Cash or note. Safe arrival guaranteed. W. M. DILLON, Sterling, Ill.

WANTED—An up-headed stylish roadster of 1,050 to 1,075 pounds, 15.2 to 16 hands; must show a fine gait. One that is not afraid of anything and does not pull is what I want, and must be worth the price. Address Lock Box 174, Willimantic, Conn.

FOR SALE—Red poll bull; three years old; weight 1,600 pounds; extra fine and sure breeder. J. G. STRYKER, Tipton, Ia.

DON'T LOOK AT THIS—On account of the illness of my son, very few cattle were sold. I will now sell Short-horns at private sale at bed rock. Cows, heifers, and bulls. C. R. CRUMPACKER, Washington, Ia.

FOR SALE—Murray & Fisher trotting sulky; doubleex axle; weight, 25 pounds; never been out; good as new. Will sell very low. Cost $90. Address R. J. BLACK, Washburn, Ill.

TWO YOUNG SHORT-HORN BULLS—Good ones. Out of nice milkers. Red-and-white and rich red-roan. Prices, $75 and $100. Apply to JOHN W. HILLS, Delaware, O.

WANTED—To exchange one E. Setter bitch, five Scotch collie dogs (thoroughbreds and pedigreed), 15 pairs White Pantail pigeons, for poultry, incubator, bees, brood foundation, or offers. F. ANDREWS, Esperanza, N. M.

WANTED—A man to care for stock, bees, and fruit trees, on shares, in the Indian Territory. For further information apply to MR. L. G. AXTELL, Reserville, Ill.

WANTED—To trade a large lot of Maddon hives, nicely made and good as new; some with combs complete for honey, new or after swarm of '92. Write for particulars. Address D. S. HALL, South Calais, Vt.

TO EXCHANGE—Beehives for beeswax. WM. IDEN, Nine Grees, Ind.

WANTED—To exchange one 7-slot safety bicycle, high grade, latest pattern, ball bearings, rims and frame, cushion tires, nearly new; one Smith Corona best high wheel made, good as new, very cheap; one Odell typewriter; 125 good second-hand hives for L. frame; one extractor for L. frame, for wax, honey) supplies, or offers. J. A. GREEN, Dayton, Ill.

WANTED—To exchange thief hives for bees and queens, or pure-bred poultry or eggs. SAM'L BOYD, Fremont, Newaygo Co., Mich.

WILL exchange bees in 8-frame Langstroth hive, on wired combs of foundation, for S. C. Brown Leghorns; cash or young birds taken. Address BROWN LEGHORN, P. O. Box 23, Brownstown, Green Co., Wis.

BEGINNERS—Send me 20 cents in stamps, and I will send you an Illustrated book giving valuable points on beekeeping. Address S. F. TRESCO, Swedona, Ill.

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There are for sale cheap, beautiful, and desirable homes in the "Sunny South" near the sea, near that thriving seaport city, Norfolk, Va. There are homes here for thousands of people who want homes in our mild, healthful, delightful, and best all-the-year-around climate. Our soil is productive; we have the best markets, the lowest freight rates, and the greatest number of both mineral and acquired advantages of any section of the Union. Our church, school, and social advantages are good. We have good roads, low taxes, and the cheapest freight rates of any section in the United States. The Germanopolis or Southern Home of Plenty tells you all about the country around Norfolk, Va. Send for free sample copies. Address "Germanopolis," 213 Main street, Norfolk, Va.

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The complete Dictionary in four volumes, as above shown, and THE AMERICAN FARMER for the balance of this year, will be sent, prepaid, to any address for $1.

THE AMERICAN FARMER.

Established 1819. SOUTHERN EDITION—BALTIMORE, MD., JULY 15, 1892. Vol. LXXIII. New Series.—No. 14.

"CORN-CAKE" MURPHY.

Success of a Food Missionary in Enlightening Europe as to the Merits of Maize.

BY HARVEY AUSTIN.

LASTERED on the bill-boards all over Berlin and other cities in Germany has been seen lately a big red poster, at the top of which is an American eagle with his wings outstretched, screaming in triumph. Under the eagle is the following inscription:

Murphy-Brod.
(2-3 Roggen, 1-3 Mais.)
5 Pfund, 60 Pfennige.
Fruherer Preis fur 3 Pfund, 50 Pf.

Translated this means: "Murphy-bread. Two-thirds rye, one-third Indian corn. A five-pound loaf for 60 pfennigs (about 14 cents). Former price, a three-pound loaf for 50 pfennigs.

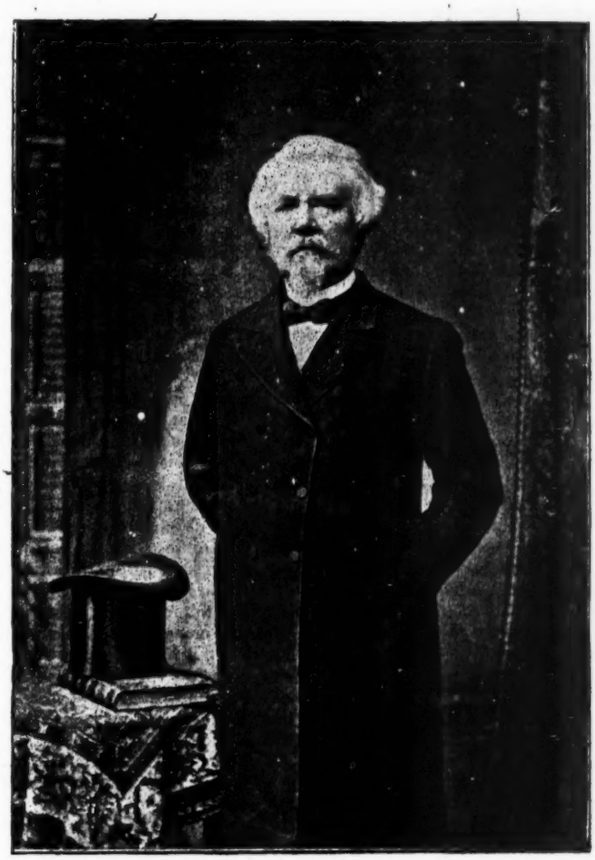
The opening of the European markets to American maize as an article of human food is due chiefly to the efforts of Col. C. J. Murphy. Under his direction the money granted to the Agricultural Department has been expended, and the favorable results obtained. A few years ago, maize as an article of food was almost unknown on the Continent of Europe. To-day it is coming into common use.

Col. Murphy, as shown in the engraving below, is a well-preserved man of 60, a veteran of the Mexican and civil wars. In the civil war he was taken prisoner and was confined for a time in Libby Prison.

He made his first efforts to the introduction of maize into Europe as the representative of the State of Nebraska. In this capacity he published in Edinburg in 1890 a pamphlet entitled, "Economy of Food is the Wealth of Nations." This pamphlet of 96 pages contains, first, a lecture by Col. Murphy on the properties and uses of Indian corn, which occupies a space of 20 pages. This is followed by a chapter with the caption, "General Remarks on Indian Corn," extending over 14 pages. Recipes for mush, etc., come next, with five pages, followed by directions for making corn bread, cakes, muffins, puddings, etc., to the extent of 20 pages. Green corn dishes are not neglected, and 12 pages are devoted to that interesting theme. The pamphlet closes with a chapter on the use of Indian corn in the Southern States, where the perfection of corn bread, johnny-cakes, and pones is found. Twenty-five thousand copies of this book were printed for distribution in Scotland, England, and Ireland.

Col. Murphy tried hard to have a colossal corn exhibit at the Paris Exposition of 1890, but it is not best to detail the obstructions and defeats which his efforts met. Soon after this event Col. Murphy was employed by Secretary Rusk as the Special Agent of the Department of Agriculture to look after the interests of American maize in Europe, a position he still holds to the great advantage of the Indian corn grower of the United States. In these efforts he was greatly helped by the American Minister at Berlin, and through Mr. Phelps corn bread became a fashionable diet, as well as a boon to the poorer classes. Europeans never before had such a chance to get the genuine flavor of properly cooked corn meal, and when once it was presented to them in attractive shape they were not slow in recognizing its merits.

The 51st Congress appropriated $25,000 to aid him, and he was ordered to Germany. When Murphy reached his field of action he astonished the natives as well as the Agricultural Department at home by his quick work. He converted the Germans at once, and he had not been in the country more than a few months before he had introduced corn meal into more than 800 bakeries, and had taught the bakers how to combine it with rye flour and make a cheap, nutritious loaf.



COL. C. J. MURPHY.

Having succeeded so far, Col. Murphy went to work upon the German Government, and the result of his labors was the appointment of a board of army officers, who, after many experiments, recommended corn meal and rye as rations for the German army. Until lately Col. Murphy was in Russia, where he taught the Russians how to make corn bread and to use the corn sent as a gift from this country to the starving peasants.

It is likely that Murphy will be sent to other countries in Europe that he may carry on the work in which he has been so successful. Another effect of his efforts abroad is that large orders for American machinery have been received here from Germany, and it is expected that the Germans will soon be grinding corn for themselves with their own mills.

Mr. Landreth, in a letter written to Col. Murphy in April, said:

Certainly Congress will not fail to make another special appropriation, as the general introduction of Indian corn for domestic use in Europe would, if extended even to fair scope,

amount to an export 20 times as great as wheat; for, while our wheat export is made in competition with the wheat of Russia and India, there can be no competition, or very little, in the export of Indian corn, as the United States may be said to hold the key to the granaries of that cereal.

In a special report to the Secretary of Agriculture, made at the beginning of his work in Germany, Col. Murphy says:

"In regard to the work in Germany it is only possible at this writing to sketch the outlook, and this I am glad to say is very flattering. While so far I do not find perhaps so many channels to reach the people as in Great Britain, I am happy to say that I find a disposition on the part of the Government officers to arduously co-operate in my work, and I need hardly say that in this country the countenance of the Government counts for a great deal. That I have been able so promptly to present my work to the consideration of influential personages here is largely due to the cordial manner in which my mission has been welcomed by Minister Phelps, who has shown much interest in the work, and has afforded me every opportunity in his power to push it in influential quarters. It gives me pleasure to take this opportunity to state, however, that the action of the Minister is in accord with the general disposition of those of our diplomatic representatives abroad with whom I have been brought in contact in the work intrusted to me. I am also in receipt of letters from individuals asking for information and showing much interest in the work.

"The condition of things on the Continent is favorable to the introduction of a new cereal food and a new source of supply. I am, moreover, extremely hopeful of securing favorable consideration on the part of the army officials of a bread to be composed of half corn and half rye meal for use as army rations, in place of a bread made wholly of rye.

"I have already caused several loaves of such bread to be baked and have submitted them to various persons, among them some Government officials, and in every case it has received the highest commendations." Such is an outline of the work of Corn-Cake Murphy—a work which will long be remembered by his grateful countrymen.

Save What You Have.

EDITOR AMERICAN FARMER: In observing the management of most of farmers, I am lead to believe if they were as diligent in saving what they have as in trying to get something they have not got, or to get more of what they have already, times and condition of the majority of them would be different.

It is a notable fact that farmers will clear a farm or a piece of land, and then work it without mercy as long as it will bring anything, and then cast it away without ever trying to save the soil from washing away or to save the fertility of their land, but clear another piece of land. Many farmers by this way of managing have gone to the wall; if they have not, their farms have, and it is either leave and seek a new farm or improve their old worn-out fields. To do or undertake the latter, the farmer should remember that it is a more difficult task to renovate old exhausted land than to take good land and keep it improving.

The first object when opening a farm, or even clearing a field, should be to hold the soil, *i. e.*, save what he has; for if he suffers it to break, it will be much harder to stop the break than it would have been to have applied a preventive. In trying to save the soil, it will be found that there are but few methods of saving the soil but what will at the same time improve its productiveness. One of the best methods of saving the soil is turning under growing crops. This will fill the soil with a substance that will hold it together and keep it from breaking or washing away; but it is hard to get the farmer to realize the profit of burying in the earth the produce of his land to save the soil or to promote its future productiveness. But wherever the farmer does use growing crops to saving his soil he found not only was he saving what he has, but improving it by filling it with a substance containing a greater quantity of plant food.

Most farmers know that nitrogen is the costliest ingredient in all manures, but seem not to realize the fact that what nitrogen is in their soil is cheaper to save than to buy it and put it in the soil. To save what you have is not all; for in saving what is already in the soil will accumulate more and store it in the soil. It is, perhaps, impossible to prevent all losses from leaching, but there are many ways to lessen the loss of this valuable plant food.

Again, the farmer cultivates his fields and reaps his crops, and in these crops much of the fertility of the soil is stored. This fertility, if these crops are not properly saved and properly managed, will, much of it, be lost. The farmer, in wasting these crops, loses at two points; he loses much of his fertility, because much of this is where his land cannot reap the benefit, and he loses the nutrition they would impart to his stock. And if we will pursue the subject further we will find the loss continues, for this waste of feed causes the farmer to buy, and the same amount of feed cost him more than his own. But this is not all; he lets much of the manure from his stock waste, and here sustains a loss.

Let the farmer ever keep it in view that what he has is better to him than that he has not. So save what you have.—THOS. D. BAIRD, Greenville, Ky.

Teak Wood For Ship Building.

The teak, which has passed into proverb as the best material for ship building, is superior to all other woods, from the fact that it contains an essential oil which prevents spikes and nails driven into it from rusting. This property is not possessed by any other wood in the world, and furnishes an explanation of the fact that ships built of teak are practically indestructible. Some have been known to last 150 years, and when broken up their beams were as sound as when first put together.

THE GRANGE.

The Inestimable Good Wrought by this Organization.

THE CONSERVATIVE and non-political element and sentiment of the Grange Order gives to its members calm consideration and thorough discussion of all the great, vital public questions of the day. There is no phase of any of the great problems of civil government but what is brought out in earnest but friendly discussion in the Grange, and our people are better educated, and better understand the truth of them, than are the partizan devotees able to be from their information gained almost wholly from their own respective party politicians and party press. The Associated Press reports of the day so color the information they spread broadcast over the land with lightning speed that truth has long ago ceased to be an important factor in their work or a matter of much concern. It is policy and success they strive for, and through these agencies, owned and controlled by capital and monopoly, Wall street influence carries complete sway.

It is so difficult to work reform in the legislation of this great Nation, and bring to bear such a public sentiment of justice and right and secure it, that almost every organization but the Grange gives up in despair long before the acquisition of their honest and persistent demands.

It is continued work and most respectful education and petition that wins the people's cause and after a time gets its true recognition. Farmers regard agriculture as the foundation stone of our governmental prosperity, and all true and noble men so accord it. A blow against its interests reaches, in ill effects, beyond the farmer. It is an injury to the life of the Nation itself; therefore, the most villainous epithets hurled against the farmer and his cause should not have a feather's weight in altering his judgment or line of political action. "Calamity shriekers," or any other vile names, have no terror for the true Granger, neither do they deter him one moment from pressing his truthful, honest course. The fact is, Grangers make it a business to thoroughly acquaint themselves with the truth and honesty of their demands by thorough and exhaustive research in, first, Subordinate Granges; second, in thousands of districts or Pomona Granges; thirdly, in State Granges; and wind up with the passing judgment of our National Grange. And with this closing of the case, we quite understand what the great agricultural interests truly are, as well as politicians or our American Congress.

The National Grange, as our mouthpiece, has asked for the legislation that we believe the cause of agriculture justly merits. It comes as the voice of people of all political parties, and as the combined will of the best element and thought of the farmers in 43 different States of this Union; and the Member of Congress who passes by these demands lightly, or who ignores them for any great length of time, establishes at once a gnawing cancer upon his political body that will soon work his political death. The combination of all political parties in our membership gives us this purifying power; and it is one of the wisest and strongest organs of our associated body, that we are non-partizan, and can deal with men and parties as they well deserve.

While farmers look to their own interests best when they are farmers, they must at the same time be well informed in the needs and requirements of this glorious republican Government of ours. There is no class of people that have as much at stake as they, or who needs to keep up a greater eternal vigilance; Government will not run itself correctly or honestly; the devil has always been and active element and a standing menace to the cause of right, and we have no great hope of moral strength to put him down and keep him harmless, except by farmers and farmer organizations. The great neglect of this for a few generations of this country's development now makes the struggle more severe and more pressing, but I for one have faith to believe it will end correctly as soon as the Grange and similar farmer organizations take their proper place as law-makers and directors of this governmental work. I note with pleasure their steady advance and the change of respect for them and their cause as this advance progresses.

All the farmer organizations have asked for the passage of a few just and honest laws. They will soon emphasize this demand at the polls through the American ballot, and political parties are soon to be called in question for their short comings, as well as Congressmen individually. Many changes will be made and many surprises follow, but it will work purer political action of this Government as the farmers change the actors and the scenes.

The Pure Food Bill, in interest of commercial honesty and fairness to agriculture, should have been a law; so, also, the Anti-Option Bill, and a very large majority of our people demand a reasonable increase of the volume of money to better serve the business interest of 64,000,000 busy, struggling human souls, and free themselves from Wall street yoke and power. What is more, they will soon have it if it tears down the most brilliant political parties, and wipes out politicians of profound greatness. The acquisition of many reforms encourages us to press on. We feel proud of our Agricultural Department and the noble work and fight made by Gov. Rusk for the good of agriculture; his administration has been an educator to Congressmen, and finally to the world. The American hog is hereafter to be tolerated in the European States, and the Department has risen above the distribution of a few cheap garden seeds and colored pictures of ringboned and spavined horses neatly bound in large volumes for Congressmen to buy favor of agricultural constituency at home from the distribution of a wagon load of them annually. We should be glad of still greater farmer membership, and promise enough truth for them to absorb, so their minds and hearts will become broader and better, and reform commence at home. New desires, new strength of man and character will follow their intimate connection and education in the Grange.—HENRY TALCOTT.

ROOT PRUNING.

A System of Treatment at Transplanting Which Disproves Old Theories.

BY THOS. L. BRUNK,
[Professor of Botany and Horticulture, Maryland Agricultural College and Experiment Station.]

IT HAS long been the belief that in removing a tree from the nursery that the ideal operation would be to save every root and rootlet intact, that the shock of transplanting may be reduced to the minimum. Downing States: "A transplanter should never forget that it is by the delicate and tender points or extremities of the root that takes up their food, and that the chance of complete success is lessened by every one of these points that is bruised and destroyed. If we could remove trees with every fiber entire, as we do a plant in a pot, they would scarcely show any sign of their change of position. In most cases, especially in that of trees taken from nurseries, this is by the operation of removal nearly impossible. But, although we may not hope to get every root entire, we may, with proper care, preserve by far the larger portion of them, and more particularly the small and delicate fibers."

Thomas says: "If a tree could be removed with all its roots, including the numerous thread-like radicals and all the spongelets, and placed compactly in the soil, precisely as it stood before, it would suffer no check in growth. The nearer we can approach this condition, therefore, the greater will be our success."—American Fruit Culturist, p. 59.

Numerous citations could be made similar to the above; in fact, I do not find that any of our highest authorities vary from the ideas expressed in them. They all advocate transplanting a tree with as many roots attached as it is practicable to remove with it. It would seem at first that there is overwhelming evidence against any other course of reasoning that may be applied to this subject. The roots are the absorbing organs which take up from the food-stored soil all the

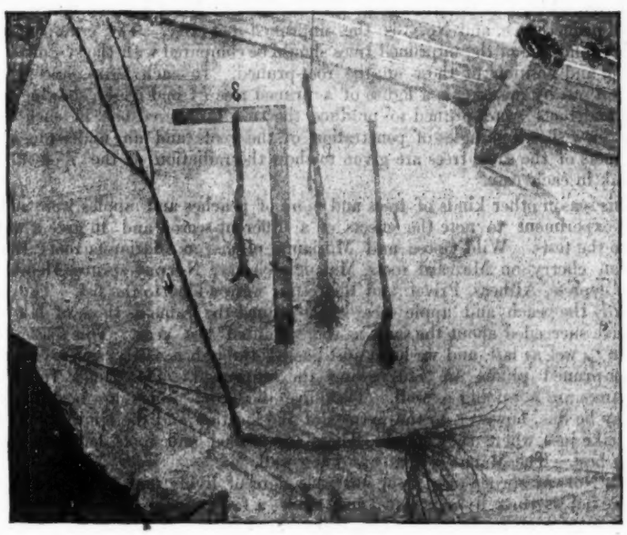


FIG. 1.—1, Apple; 2, peach; 3, pear trees pruned to set out. 4. Pear tree as usually set out, showing place where cut should be made in removing the top.

water and the larger part of the mineral and solid foods which enter into the composition of a tree. It seems irrefutable that if any of the absorbing area is removed the tree is thereby shortened in its food supply in the same direct proportion. It must be admitted that this is true if done during the growing season, when the "sap" (*proto plasm*) of a tree is in a state of activity; but is it the case during the period of rest, when the "sap" is in a thickened, inactive, non-transferable condition? It is the conditions a plant takes on during its inactive stage that do not seem to have been considered by our older writers on practical horticulture. Plant physiologists have understood these conditions well, and have shown that "sap" does not "go down to the roots" in Fall and return to the parts above ground in Spring, as is so commonly believed. They tell us (and common observation proves it) that the "sap" toward Fall gradually thickens and ripens as growth above lessens, till finally it becomes completely immotile; but during this inactive stage it does not lose its powers to return to active life when the warmth of Spring returns.

In this stage of a woody plant parts of it may be removed that may become new individuals if placed under proper conditions of heat and moisture. Most of our fruit trees may be propagated from either cuttings of shoots or of the roots. If a piece of a tree (cutting) will start to grow without roots, what must that argue as to the condition and nature of the sap within such cuttings? Microscopic sections of such cuttings show that the ing wood cells are stored full of starch and other concentrated food materials. When Spring comes, with plenty of heat and moisture, this stored food is transformed into those simpler and easily transferred food materials which a plant can use in growth.

This requires but a slight amount of water, which is readily absorbed through the bark of young shoots and through the thin-walled cells at the cut-end. This starts growth and activity. But before growth can proceed to any appreciable extent, the cutting must make provision for a specialized absorbing surface in the soil. This is done by throwing out at first a set of delicate, multiplying cells from the layer of young, growing, and dividing cells just beneath the bark at the lower end. This white ring of protruding cells is known technically as the "callous." Nurserymen usually assist cuttings to form this callous early in the season and before placing them in the nursery row, so that root growth may be sure to precede leaf growth, as leaf growth before the initial steps of root formation takes place usually proves fatal to the cutting.

From this callous the young rootlets proceed rapidly, and as they operate in an area so near the cutting it is fed with less effort and more rapidly by a few roots than it could be by a greater number located farther away. Moreover, it is learned from a rooted cutting that it forms a set of roots that take a direction in the soil similar to those of a seedling of the same variety; or, in other words, forms its roots both in point of direction and penetration into the soil, and in a uniform radiation about the trunk compatible to its nature and habits of growth.

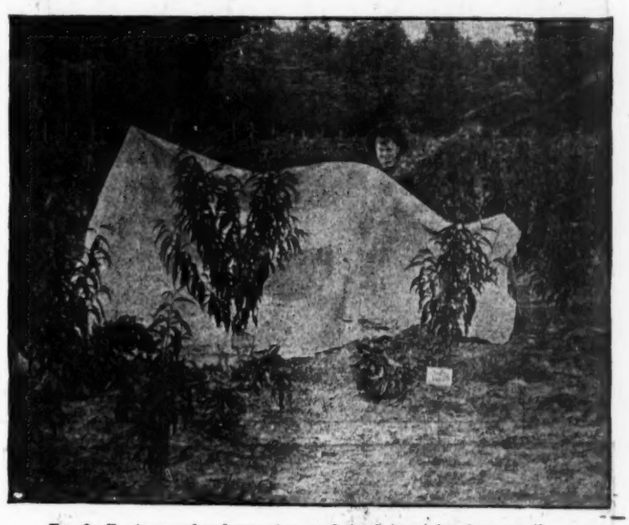


FIG. 2.—Root-pruned and unroot-pruned peach trees showing growth.

Some authorities state that a cutting makes a "duck-footed" set of roots. Observation over a wide field of kinds of cuttings, and of latitude and climate in which they have been grown, thoroughly disproves to my mind any such statement. I have seen Le Conte pear-cuttings grown upon the heaviest clay subsoil of the coast region near Galveston, Tex., that had sent down vertical roots, penetrating that soil over four feet the first season. Piece-root grafted trees also send out new roots deep or shallow, according to the nature of the variety.

From these facts and observations, and from the promiscuous accidental tests made by several growers in various parts of our country of planting trees whose badly-mutilated roots had nearly all been removed, and such trees proving to be more vigorous and uniform in growth than those planted with plenty of roots, I was led to make some inquiry into this seemingly contra-physiological condition.

Accordingly, in 1889, some tests were made in a small way with nursery trees and stock, which gave results conclusive enough to show that an important subject had been undertaken, and that it would justify a test on a larger scale. In April, 1890, 170 Reeves Favorite peach trees, 95 Lawrence pear trees, budded on Japan stock, 95 Ben Davis and 95 Red Astrachan apple trees—all budded maiden trees—were procured for this test. One-third of each of these kinds were root and top pruned, leaving only prongs of roots one to three inches long; one-third were pruned so that the roots were from five to seven inches long, and the remaining third were not root-pruned, except that the ends of badly-mutilated roots were removed. The tops were in every case removed, as shown in Fig. 1, leaving the apples about two and a half feet long (Fig. 1–1); peaches 20 inches (Fig. 1–2), and pears about 16 inches (Fig. 1–3). No selection was made from the total number of trees for each lot, except that the poorest rooted ones, when otherwise of the same vigor, were selected to be pruned, thus giving a seeming advantage to the unpruned trees. Figs. 1–4 also shows a pear tree cut at a point about 16 inches from the root, showing how much of the top we removed. The tree also shows the usual amount of roots and top allowed to remain at the time of setting by many planters. I might say here that the top was not cut uniformly at just a certain distance from the roots, but about the distances mentioned above, and with special reference to five or six good buds to be used as the basis of future limb-growth.

The trees were all set side by side in a uniform soil, about six inches deep, in a common plow-furrow. Those that were root-pruned were set with three or four

times the speed of those with a mass of roots, to be carefully placed and arranged as they were in the nursery. They all received fair culture with a common Iron-age cultivator, such as would be given by any good orchardist. Notes were taken several times during the growing season, and at intervals a few of each set were taken up and the growth and character of the roots noted. Photography was freely used to record the features of growth.

Fig. 2 shows that by July 11 the unpruned peach trees had made a considerable more growth than the root-pruned trees. The apples and pears showed at that time only slight differences of growth in favor of the unpruned trees. The first few months the root-pruned trees do not start a very rapid growth, but by Fall overtake or exceed the growth of the unroot-pruned. We did not lose a single tree from any of the sets.

By Fall the unpruned peach trees had made a little more growth than the root-pruned, but they were not of as even a growth as the root-pruned.

In case of the pears, the root-pruned were far more uniform in growth, and anyone could see that they had outgrown those that started the season with a full set of roots.

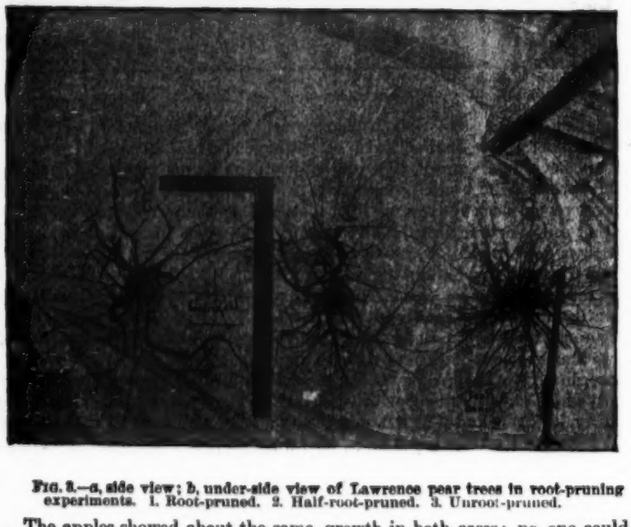


FIG. 3.—*a*, side view; *b*, under-side view of Lawrence pear trees in root-pruning experiments. 1. Root-pruned. 2. Half-root-pruned. 3. Unroot-pruned.

The apples showed about the same growth in both cases; no one could have told which was which by Fall without the map. The examinations of the roots during the Summer developed some interesting facts. The first thing noticed on removing the trees from the soil was that the old roots had retained all their malformations, twistings, and horizontal position they had acquired some way in the nursery or in packing. At least they were just the same as they would have been if set out by the most careful planters. The several figures bring out this feature very forcibly. Nearly all the young feeding roots grew from the tip-ends of the old roots, leaving them bare even when over a foot long. Only an occasional new lateral root was found. This threw all the absorbing surface some distance from the trunk. Plant physiology gives us a general law which states that the farther sap has to travel and the more devious its path of transfer from the root absorbents (root hairs) to the leaves, the less the growth and vigor of that plant in a given period of time. Sap is retarded in its circulation, and wood formation cannot go on as rapidly as in cases where the sap travels short, direct paths. In all young trees, wood is the first and indispensible product of growth to form a proper basis for future fruitfulness. After a tree is well developed and supplied with strong, stocky branches, it is then time to retard the sap flow and cause fruit buds to form.

In the root-pruned trees the young rootlets sprang as readily from the large circle of cambium at the ends of the short root stubs as from the ends of the longer roots. They came out, too, in greater numbers than on the old roots on unpruned trees, the ratio being about 10 to 3. These young roots clustered close about the trunk of the tree, making the least possible distance for the sap to travel. It seemed evident, also, that new roots developed much faster where the sap traveled short distances. The cut ends by Fall had in most cases completely healed over, leaving no place for rot to start.

Another very important feature in the growth of the young rootlets noted is that those on the unpruned roots took about the same direction of growth in the soil as the old root was placed when planted. If horizontal, the young roots grew off horizontally; if inclined downward at an angle, the young roots assumed about the same angle. In the root-pruned trees the young roots had very little to guide their growth, leaving them to take such angles as are found in seedling roots of the same variety. In other words, they were put into such a condition by a removal of nearly all the roots back to the collar that they could take on a new root system compatible with their nature, needs, and seedling habits of growth. By the old method, an unnatural system of roots are forced upon a tree. This system of roots is usually irregular, one-sided, and poorly directed in its growth. Such trees are usually surface-rooted, having but few, if any, deep penetrating roots with which to supply the tree with an abundance of water. Drouth and deep freezing are agents that act upon and shorten the lives of such trees.

The newly-formed roots on the root-pruned peach trees were found to penetrate the soil at an average angle of about 40 degrees. Those on unpruned trees were mostly horizontal and surface-feeding. The pear was about the same as the peach, with perhaps more that penetrated deeper from the root-pruned trees, as shown in Fig. 3, *a* and *b*.

The Ben Davis apple followed its old record of holding its roots rather close to the surface. This is shown in Fig. 4, *a* and *b*, in which the roots of the root-pruned tree were carefully traced out; also, its heavy production of new roots is prominetly shown. It might be well to state that in all the figures, No. 1, is the root-pruned tree selected as the average of the lot planted; No. 2 in each figure is the half-root-pruned tree, and No. 3 is the unpruned-root tree. The cramped and irregular condition of the unpruned trees should be compared with the symmetrical condition and position of those on the root-pruned. In each figure, except one where left out by mistake, is a figure of a pruned tree (4 in Fig. 4), showing how the top and roots were pruned to produce the tree numbered *one* in each case. A side view showing angles of penetration of the roots and an underside view of the roots of the same trees are given to show the radiation of the roots about the trunk in each case.

This season other kinds of trees and more of peaches and apples were added to the experiment to note the effects of a different season and to give a wider range to the tests. Wild Goose and Marianna plums on Marianna roots, Black Tartarian cherry on Mazzard roots, Mahaleb cherry, Norway spruce, Hemlock, Lawson cypress, Altheas, Privet, and Red cedar were added to the list. Thus far (June 23) the peach and apple trees—root-pruned the same as those of last season—have succeeded about the same as those planted last year. This season has not been as wet as last, and we have just passed through a fairly severe drouth. The root-pruned plums are outgrowing the unpruned. The Black Tartarian cherry trees are not doing as well. Two have died, and others are not thriving. This may be due, however, to the wetness of the location and the tendency of the soil to bake just where they stand. Those top-pruned and roots left intact are thriving best. The Mahaleb trees are doing well.

The Norway spruce trees show but little signs of living under the treatment. Only one out of three living; but it has made a fair growth. Those with roots left on are growing freely. The Hemlocks fared even worse than the Norway spruce. Two out of three are yet living, but have not grown any, and dry weather will likely kill them. Checks are growing finely. Of the Lawson cypress, one is living, but has made very little growth. It will probably live. Those, however, not pruned at all are not doing very well. Two have made no new growth. There is very little difference between the two sets of California Privet. Both have thrown out shoots from four to eight inches long; those with unpruned roots slightly in the lead. The root-pruned Altheas are starting slowly, but none have died or will likely die. The Red cedar (*Juniperus Virginiana*) shows no difference between the two sets. All these trees were set April 16, 1892.

This season shows that the root-pruned peach trees set out last year are nearly equal in growth and size to those unpruned. This is shown in Fig. 5, in which the row to the right is the root-pruned. The apple trees are equal in size, and the root-pruned pears are larger than their checks.

Some of the trees planted last year that were taken up during the Fall and Winter to be photographed and examined were root-pruned and set out again last April. They have thus far made a growth equal to and even greater than a few that were not root-pruned. This shows the successful growth of a two-year old root-pruned tree. This is about the extent of the evidence thus far gathered from the tests I have made. As the trees acquire age, they will show, no doubt, other facts that cannot be presented now, except as observed in orchards in other parts of the United States.

For further evidence on this important and even revolutionary system, I will cite some trials that point very emphatically to the merits of this system.

The honor of first discovering the practicability of this method of treating

pear trees for the Gulf Coast region, and of bringing recently the system prominently before the public as likely to apply to all fruit trees, is due to Mr. H. M. Stringfellow, of Hitchcock, Tex., near Galveston. Mr. Stringfellow is a well-informed gentleman, a college graduate, a careful and close observer of nature, and is an enthusiastic, sagacious fruit-grower and nurseryman on the coast plains of Texas. Nine years ago he planted a Le Conte and Kieffer pear orchard, which was pronounced by about 60 members of the American Horticultural Society that passed through it in February, 1890, to be the finest orchard of the kind they had seen, and probably the finest in America, for its uniformity of growth and the utility and beauty of its training. From the first of this orchard enterprise, Mr. Stringfellow began a study of tree growth, and made many tests which proved to him that our old methods of transplanting and training were very erroneous. In an article in the *Southern Horticulturist and Farmer* of July, 1891, he makes this statement: "Some years ago I set a large number of one-year Le Conte pear trees in nursery rows, leaving the roots about five or six inches long. On digging apart of these trees for sale the next Fall no sign of a tap or deeply-penetrating root was found, though the Le Conte invariably throws such roots from cuttings. The next year, being pressed for time in Spring, instead of replanting, as usual, I cut off the roots of 5,000 small one-year trees to about one-half inch, and the tops to 15 inches, reducing them practically to cuttings, and simply stuck them down three inches apart by a line. On digging these trees, unlike the horizontal and fibrous roots that characterized the others, I found them strong, deep, cord-like, and the tops from six to seven feet high, the finest trees I ever grew. Last season I treated 20,000 the same way, with the same result."

He has made similar tests with cottonwood and apple trees, with the same results, and he believes that the nearer we can approach to a cutting or a seedling when our trees are finally set, the longer lived, healthier, and more productive they will be.

These tests were all made in the coast region of Texas, where pear trees grow very freely from cuttings; and in fact, cuttings of most trees grow easily. But the evidence of others shows that root pruning succeeds in various parts of our country.

Samuel Edwards, of North Peoria, Ill., gives an account in the *Fruit Growers' Journal* of a lot of three-year-old apple trees he bought from a Rochester (N. Y.) nurseryman, and were so delayed on the road and so badly frozen that the roots were badly damaged. He cut off the tops to about two feet and the roots close to the bodies, and set them out as an experiment. He says that they all grew finely, making handsome, fruitful trees.

O. E. Hine, of Vienna, Va., told me that several years ago he received a number of two-year old silver maple trees with badly mutilated roots. He cut away most of the roots, reduced the tops, and planted them. They have proven to be fine, thrifty trees.

A. W. Harrison, of Alexandria, Va., tells me that when living at Mt. Clair, N. J., he transplanted a number of elm and soft maple trees from the forest to his lawn. He pruned away nearly all the roots and all the top except a straight pole about eight feet high. These trees are living to-day, and are fine models of vigor and beauty.

C. W. Campbell says in the *Florida Dispatch and Fruit Grower* of Dec. 31, 1891: "For a month during our dryest weather I had been transplanting orange trees, and will here say that I followed the plan of cutting the roots short and cutting back the top severely as to leave but little of it. As a result, I have never had so good success. Out of 500 trees, I will not lose one, though I never planted when it seemed so unfavorable as last October. In February, 1886, to save as much top as possible, I dug the roots as long as I could possibly get them, and out of 500 I don't believe there are 50 living to-day, and they have never made a good growth."

J. H. Hale, of South Glastonbury, Conn., writes me thus: "You will recollect talking with me at the Pomological Meeting in Washington last September in regard to root pruning of peach trees at time of planting. Perhaps it will interest you to know that in planting an orchard of more than 100,000 trees at Fort Valley, Ga., the past Winter, we root-pruned the whole of them; and now our orchard Superintendent reports that they are making a wonderful new growth, and, so far, not a missing tree can be found in the whole 100,000."

M. B. Sturgus, of Hanover, Jefferson Co., Ind. (southern part, in Ohio Valley), tells me that he planted an orchard of peach trees, and the roots were so poor and mutilated of a large part of the trees that he cut them back severely. After a year's growth, the root-pruned, to a tree, were much finer than those not root-pruned.

I have heard of other smaller tests that resulted the same as those cited above. It is needless, however, to multiply instances where root pruning at time of transplanting has been successfully tried. The best and most conclusive evidence is that resulting from a personal trial, and that at least every grower of trees should make. It should be stated that it is best to set root-pruned trees in the Spring, as they are more apt to be heaved than other trees if planted in the Fall. In the South they can be set in November to advantage, as they will callous at once and form roots somewhat during the late Fall and Winter.

With all this empirical evidence from the various sections of our country and my own experiments, I believe I am safe in stating that this method of treating trees is destined to supplant old methods to a large extent, and with a larger range of species and varieties than has yet been tried, and that it has a number of important advantages over old methods which will give a new stimulus to fruit growing and result in a new system of training and after-treatment of orchards.

Let me here review briefly some of the advantages and conclusions to be drawn from the evidence before us.

1. The half-tone cuts given herewith show for themselves that a root-pruned tree forms a uniformly radiating and usually deep, penetrating root system, or a system of roots closely resembling that of a seedling of the same variety. A tree set in the ground with all or a large part of its nursery roots has forced upon it a root system that is largely unnatural, and cannot serve the tree in the same capacity as a set of roots "made with its own hands." The roots formed by a tree from short prongs are certainly more compatible with its nature, its needs, and its environments.

2. There is evidence at hand that proves that root-pruned trees have greater longevity, are more vigorous and uniform in growth, and that they will bear more regular crops.

3. Root pruning must be accompanied with severe top-pruning. This means low-training of our fruit trees; a practice of great advantage, but seldom done.

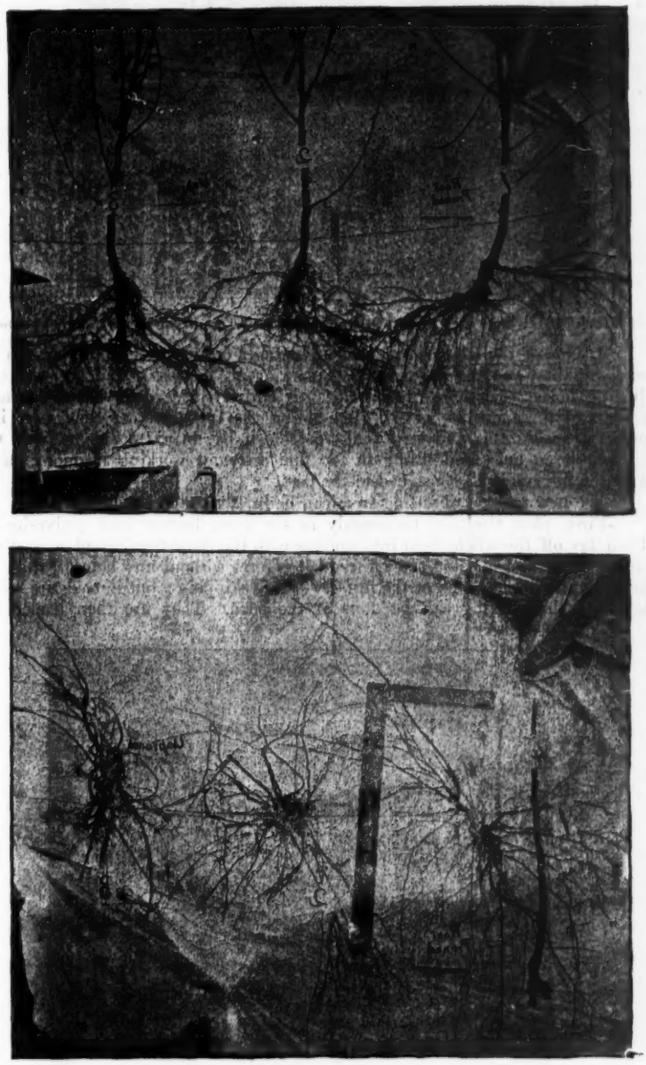


FIG. 4.—a, side view; b, under-side view of Ben Davis apple trees in root-pruning experiments. 1. Root-pruned when set out 2. Half-root-pruned. 3. Unroot-pruned.

Low training, with limbs filling all the space about the trunk of a tree to the ground, protects the trunk from "sun-scald," or shades the tree so the sun cannot heat up the sap during Winter, causing it to take on a Spring condition, which is at night acted upon by frost tearing asunder the delicate cells of the cambium and causing the bark to crack open on that side of the trunk. No weeds can grow under or near such trees, as the ground for several feet is thoroughly shaded. It is a well-established fact that shaded or mulched soil absorbs more nitrogen from the air than bare soil; therefore, low-trained orchards are better self-feeders and require less of nitrogenous fertilizers. No cultivating is needed after they are five or six years old, except the small strip between the rows at the outer ends of the limbs. The trees occupy the ground nearly completely.

In this age of spraying, both for destructive insects and parasitic fungi, no more convenient and time-saving method of training could be adopted. It makes fruit gathering and thinning far less costly, and these operations can be done with less damage to the fruit.

Pruning, the most important operation of the orchardist, and with high-trained trees one of the most costly, is made easy, rapid, and inexpensive.

Low training and pruning makes an orchard self-protecting against heavy wind-storms. All the fruit located in the lower parts of the trees cannot be blown off. Trees trained thus should be set a little farther apart than high-trained trees. We crowd our trees, as a rule, too much, and this necessity will in the end become a great advantage. Fig. 6 shows an ideal pear tree two years old, low pruned.

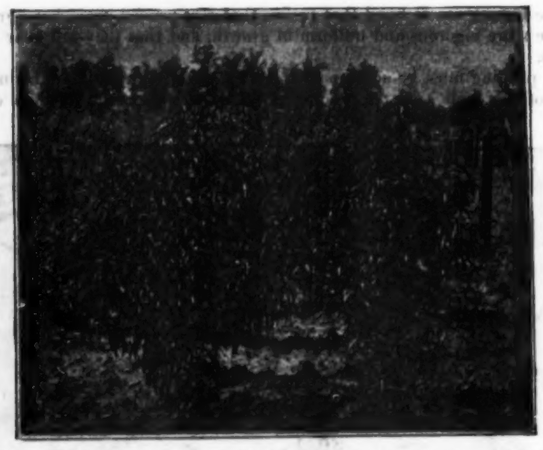


FIG. 5.—Peach trees showing growth the second year. *a*, unroot-pruned; *b*, root-pruned.

4. One of the most conspicuous advantages of the root-pruning system is the ease, rapidity, and cheapness of tree planting. The costly and useless work of digging holes (sometimes "post holes") is entirely discarded. The slow, tedious process of three men to a tree, "spreading the roots just as they were in the nursery, letting this and that long root down by an extra side addition to the already large hole, and filling in the fine dirt and working it among the roots with the fingers, is all consigned to the past.

The new method of setting trees can be briefly stated as follows:

First, plow the field thoroughly as for corn, harrow and pulverize well. Then lay off the whole field into squares with the same turning plow, and at the crossings the root and top-pruned tree is to be set without any hole digging. The pruning should be done at the nursery before shipping; but if trees are received as usual, the pruning can be done at the barn. They are then loaded into a

FIG. 6.—Growth of a low-pruned pear tree the second year.

top-boxed wagon with a little damp hay thrown over them, and as fast as a boy can drive a team and drop or throw out a tree at each crossing of the furrows a man can set them in place, and with his feet press enough soil about the stubs of roots. This is three or four times more rapid than the old method, and reduces the cost of planting three or fourfold. It is a more perfect plan than the "slip-shod" method of dropping trees in a furrow and plowing soil over the roots and then go along and set them upright, as is done by some large planters.

5. The next important saving, hinted at above, is that in packing and shipping trees from the nursery. It has been the prevailing notion with planters that a tree from a nursery is valuable only when it is three or four years old and has an abundance of roots and limbs—a tree that looks like a tree when set out and that deceives and encourages the owner into the belief that he will soon be repaid for his outlay by a crop of fruit. Planters of long experience who have learned by that "dear teacher" that such trees are a "snare and a delusion," are pretty generally learning that it is not the top that makes a tree. We now believe it is not the root; the part, therefore, between the top and root must then be "the tree." Experiment proves this for most deciduous trees, and as it is the safest guide why should we pay for unnecessary boxing and a heavier freight on the long tops with numerous limbs that are worthless to the planter?

Tree-boxes are nine feet long. Why not allow them to be shortened to three or four feet for the same number of trees, or even a greater number, as they are not nearly as bulky with the limbs removed? The diameter of the trunks forms the best criterion in judging of the vigor and value of a nursery tree. Therefore, why not allow or order nurserymen to remove the tops of trees and ship in far more compact a method, and thus save both to the planter and the nurseryman? It would be cheaper for the nurseryman, since the cost of packing and box-making would be less, and all his operations of filling detailed orders would be free from its present cumbersome and burdensome bulkiness. One-half of the ash constituents, that are at present rate of removal a considerable draft upon the nursery soil, would be saved.

6. It appears from our tests that root pruning must be a limited practice as to species of trees. It will probably apply to nearly all deciduous trees and particularly to those that can be grown from cuttings. Although some evergreens will grow when thus treated, it is likely that it will never prove an advantageous practice with them.

7. Another possible advantage is planting trees on a large scale by machinery. A tree-planter has been invented and used to some extent on the Western treeless plains, and it would seem reasonable that with the absence of interfering roots and a uniform trunk greater efficiency with such a machine would be possible. Orchards of thousands of trees could be set at a much reduced expense, and as a result we would lanch into a new era of fruit culture.

DEATH VALLEY.

The Hottest and Driest Place in the World.

According to the observations of the Weather Bureau, Death Valley, Cal., is the hottest and driest place in the world. Its mean temperature for July is 102.1°, where that of the Sahara Desert is 96°, and that of Hyderbad, Jacobabad, Dera Ismail Khan, and Mooltan, India, range from 91° to 96°. Its mean maximum temperature is 115.6°, while the places named range from 106° to 111°. Its relative humidity is 20 per cent., while theirs range from 25 to 51. The temperature rises occasionally to 122° in the shade; rarely falls in Summer below 70°, and averages 94°. People who have lived near the valley for years say that the thermometer sometimes is 130°, and has reached 137°. Men exposed to the sun's rays are not infrequently driven insane; and the story is told of one man driving in on a load of borax, who died suddenly with the water canteen in his hand. Meat slaughtered at night and cooked is spoiled the next morning; cut thin and dipped in brine, it cures in the sun in an hour. A writing-desk curled, split and fell to pieces. Tables warp into curious shapes; chairs fall apart.

Maize in Wheat Flour.

The English millers are working up a scare about American flour being "adulterated with maize," and they give this method for detecting the contamination: If a pinch of the flour be rubbed between the fingers, the dry, gritty, sandy nature of the maize makes itself felt. This is more readily distinguished if a little of the flour be rubbed between the tongue and the roof of the mouth. Again, if the gluten be washed out of the dough, a small glazed basin being used for the washing, there will collect in this the starchy washing water. On carefully pouring this away any maize flour will generally remain behind, and may be recognized by its gritty feel. A little of this sedimentary residue at once reveals its character on bringing the microscope into requisition.

To Cure Warts.

A very simple remedy for the cure of warts is the following: Pass a clean, bright new pin through the wart, and hold it so you can apply one end of the pin to the flame of a lamp; hold it there until the wart fries under the action of the heat. A wart so treated will take final leave. A wart with a slender root may be easily destroyed by fastening around it a silk thread or horsehair. After it drops off the roots should be touched with caustic to prevent it growing again. Hard warts should be cut smoothly off with a knife or sharp scissors, and then caustic applied to their roots to destroy them. Warts may also be cured by touching repeatedly with lunar caustic, blue vitriol or chloride of zinc.

The Russian exhibit at the World's Fair will occupy 120,610 square feet, divided as follows: Agriculture, 32,000; horticulture, 7,000; live stock, 200; fisherics, 6,300; mines, 2,400; machinery, 4,100; transportation, 2,500; manufactures, 50,000; electricity, 200; fine arts, 1,200; liberal arts, 12,400; ethnology, 10; forestry, 2,300.

PROGRESSIVE AGRICULTURE.

The Most Recent Discoveries, Developments, and Ideas in the Science of Farming.

Adulteration of Tea.

ATTEMPTS which have been made to grow tea in the United States have not met with much success. A few years ago an effort was made by the Department of Agriculture to establish a tea farm in South Carolina. Large sums of money were expended in this undertaking, and large numbers of tea shrubs were planted. There seemed to be little difficulty in getting the plants to grow, but for some reason the efforts at tea making were not successful. After a few years the work was abandoned, and the interest of the Department therein was sold. Mr. Shephard, a wealthy scientific gentleman of Charleston, S. C., was not satisfied with the negative results of the Department's work, and determined to start an experimental station on his own account. His work has been going on near Charleston for several years, and with encouraging results. There is no doubt but that tea leaves of fine flavor and standard strength can be grown in this country. It is not, however, so certain that they can be grown in competition with the cheap labor of China. We are not yet able, and I for one hope we never will be, to get labor for a few cents a day, and if tea growing is to be a success we will be compelled to rely on American invention and ingenuity to make up the difference between the cost of labor in this and other countries.

Whether we are some day to grow our tea is therefore still a debatable question, but there is one point on which all are agreed, viz, in having all imported teas pure and of standard strength. Our tea bill is no mean item in our foreign trade, although we are by no means so addicted to the breakfast cup as our English cousins. The amount of tea consumed, however, does not seem to keep pace with our increase in population. In 1887 we imported 87,481,186 pounds, while in 1890 our imports were only 83,494,956 pounds. The quantity imported, however, may not always represent the amount consumed in any one year, for part may be carried over in stock, and a large amount consumed may come from stocks on hand. About 51 per cent. of the tea we consume come from China, and 42 per cent. from Japan. The other seven per cent. are derived from miscellaneous sources.

Teas are generally designated as black or green, the name depending on the color of the prepared leaf. These differences in color are not due to different species of the tea plant, but to the methods practiced in curing the leaves and preparing them for market.

The methods of making black teas in Japan are essentially as follows: The leaves are first withered by exposure to the sun. Artificial heat is used only in cloudy weather. One hour's exposure to the sun is generally sufficient to properly cure the leaf. After curing, the leaves are rolled and twisted. The leaves are next subjected to "sweating," or fermentation. This is a very important operation, affecting seriously the flavor and quality of the product. During this operation the leaves lose their disagreeable, raw flavor and odor. After the fermentation process, which lasts about an hour, the leaves are exposed to the sun in a thin layer. During this exposure the color of the leaves gradually changes to black.

The leaves are next subjected to "firing," being placed for this purpose in a tray over a fire. Uniform drying is secured by constant stirring. After drying the tea is sifted and packed ready for the market.

In the manufacturing of green tea, the leaves are first steamed until they lose their elasticity; they are then rolled and dried. In general, the quality of a tea depends on the age of the leaf and on the time of picking. In England, black teas are nearly the only kind consumed in large quantity. There is little difference between the different kinds of teas, as far as their chemical constitution is concerned.

Teas are adulterated in many ways. The chief of these consists in the second use of spent leaves. This fraud is difficult of detection, since excellent leaves, which may have been used once, may have much the same composition as poor leaves which have not been used at all. The total quantity of extract, therefore, which a given quantity of tea leaves will yield cannot be taken as a sure indication of the fact of the leaves having been previously used. A better indication is the appearance of the leaves. If they are much frayed, broken, or unrolled, previous use may be justly expected. If, in addition to this, they give only a small quantity of extract, the evidence of previous use may be conclusive.

The addition of foreign leaves is best detected by the microscope. Owing to our stringent laws against this species of adulteration, it may be said that foreign leaves are rarely found in the teas in our markets. The appearance of genuine tea leaves is quite characteristic. The veins recurve before reaching the border of the leaf, and each forms a loop with its neighbor. The serrations are almost lacking in very delicate leaf buds, but are very distinct in the older leaves. The leaves which have been chiefly used in adulterating teas are those of the elm, ash, willow, beech, oak, poplar, raspberry, and plum.

To prepare the leaves for examination, they should be steeped in hot water, and then unrolled and spread on a glass plate. Even small fragments of tea leaves will usually show some distinctive character. The presence of theine, the active alkaloidal principles of the tea leaf, may also be detected by the microscope. The mean percentage of this substance in teas is about 2.3.

Tea leaves contain also about 15 per cent. of tannin, and from 35 to 45 per cent. of extract matter, including the theine and tannin. Facing is a species of adulteration to which almost all teas are subjected. It consists in treating the leaves with various coloring matters designed to improve their appearance and increase their weight. Prussian blue, turmeric indigo, and even plumbago, are used for this purpose. Leaves which have been damaged in the manufacture, or which are inferior in appearance from any cause whatever, are constantly subjected to facing before being thrown on the market.

The teas consumed by the Chinese and Japanese are not faced, while those intended for export rarely escape this process. The quantity of the ingredients used for facing is not large, and this process can hardly be condemned as injurious to health. In the case of Prussian blue, for instance, it would require an amount contained in nearly one pound of faced tea to prove dangerous as a poison.

The presence of facing may be detected by chemical means, but is most readily revealed by the microscope, the coloring matter appearing in small dots. Gypsum and soapstone in fine powder are also sometimes added to teas to give them a fraudulent weight.

The natural astringent of teas is found in the tannins which they contain. Tea may be adulterated by the addition of foreign astringents. Catechu is the chief substance which has been used for this purpose. The addition of any considerable quantity of catechu can be easily detected, although small quantities may escape the search of the analyst. In addition to the substances named, sulphate of iron (copperas), oxide of iron, sand, brick dust, and copper salts have been found in tea. Tea is also imitated by a compound known as "lie tea." This imitation contains dust of tea leaves, foreign leaves, and mineral matters held together by a starch or dextrine solution, and faced in the manner already described. To detect a lie tea, the suspected sample is treated with boiling water. This breaks the compound up into its constituent elements, which are easily identified.

The adulterations of teas, as a rule, are not such as may be considered prejudical to health. The mineral matters employed in facing are generally insoluble in water, and, therefore, are not present in the tea itself. Copper and iron salts, however, would pass into solution, and hence facing with these materials should be strictly forbidden. Facing may, however, increase the weight of a tea, and thus prove a financial fraud even if innocuous. In general, it appears that adulteration is practiced chiefly with inferior grades of tea, with the intention of making them resemble the better varieties as much as possible. All teas coming into this country are carefully inspected, and the exceptional freedom of the tea on our markets from adulteration must be ascribed to the rigid enforcement of the laws against this species of fraud. The chemical analyses of teas gives but little information in respect of their market value. The percentage of theine or tannin which a given tea contains is not a measure of its price on the market. The differences in the market values of teas are due to the flavor or aroma, and these are properties which cannot be removed by chemical methods. Dr. G. L. Spencer,* in his report on the adulteration of tea from which most of the above facts have been taken, says that the flavor and strength of a tea determines its market value, and that these qualities depend on the soil and climate of the tea-growing localities, and in the methods of curing and manufacture. A tea may be deficient in tannin, and yet bring a high price on account of the delicacy of its flavor. By the admixture of leaves of different kinds, a process called blending, a tea poor in tannin or theine may be brought up to the average. In genuine unfaced teas the value is usually in a direct ratio with the soluble matter in the ash. The finer the quality of the tea in general, the greater the quantity of theine, extractive matter, and ash it will contain, although this rule has many exceptions.

The relatively high price of Indian teas is said to be due to their high content of tannin, but among cheap teas the percentage of tannin was found to be quite as high as among those of double the price.

High-grade teas give up their extractive matter quickly and with great facility, and to this property a portion of their greater price must be ascribed. In spite of the progress in chemical and microscopical science, we must still depend largely on the skill of the professional tea taster and on the honesty of the grocer for protection against cheap and fraudulent teas.

Cocoa and its Uses.

Properly considered in connection with tea, the cocoa bean presents many interesting features. While it can never be considered as a possible product in the United States, it is, nevertheless, a matter of interest for our farmers. We are not only interested in what we grow ourselves, but almost equally so in those agricultural products for which we must look to other countries. In part seven of Bulletin No. 13 of the Chemical Division of the Department of Agriculture we find an interesting chapter on cocoa and its preparations. The raw material from which the cocoas and chocolates of commerce are derived is the cocoa bean, the seed of the cocoa tree. Central and South America furnish the most important supply of this material. From Mexico to Peru on the west coast, and from Mexico to southern Brazil on the east coast, and on the West Indian Islands the more favorable conditions for its culture are met. The cocoa tree (*Theobroma cocoa*) grows from 18 to 36 feet in hight, blooms continually, and yields two crops a year. The fruit has a yellowish appearance, is from four to six inches in length, and two to three inches in diameter. From 25 to 40 seeds grow in the fleshy pulp of this fruit, arranged in five longitudinal rows. The seeds are egg-shaped, about half an inch long and a quarter of an inch thick.

*Department of Agriculture, Chemical Division, Bulletin 13, Part 7.

Two processes are used for preparing the seeds for market. For the production of unfermented cocoa they are freed from any adhering pulp and dried in the sun. For the production of fermented cocoa the seeds are placed in piles under cover or buried in trenches in the ground and allowed to ferment for some time. Much of the acridity and bitterness disappears during the process of fermentation, and the beans so prepared have a mildly oleaginous, pleasant taste, and are more or less aromatic.

On account of the peculiar properties of the cocoa bean, its preparations are highly prized, and chiefly for two reasons: First, it has the exhilerating effects of tea and coffee, and, second, it possesses valuable food properties. Not only is it much richer in nutritive matter than coffee or tea, but in addition to this both its soluble and insoluble constituents are consumed.

The active alkaloidal principle of the cocoa is theobromine. It is closely related chemically to theine (caffeine), the active principle of tea and coffee. These two alkaloids exert a pleasing stimulating effect on the nervous system, and yet do not intoxicate as the alkaloids of opium do.

The preparations of cocoa are so numerous that much confusion in regard to them is naturally found. In this country the manufacturers prepare a plain chocolate made by reducing the roasted and husked beans to a paste and pressing this into cakes. This paste is mixed with sugar, vanilla, and spices to form various brands of chocolate for the trade. Cocoa cannot well be prepared in the form of a powder by reason of the large amount of fat which it contains. When the oil is partly removed, however, and a liberal quantity of flour added, the powdered cocoa of commerce is produced. Cocoa shells are also offered on the market, but their use appears to be quite limited.

Cocoa and its compounds are the subjects of many kinds of adulterations. Perhaps few food materials offers so many inducements to the art of the adulterator. Soluble cocoa is a term applied to some forms of the adulterated article. The term itself is enough to show the fraud, since no pure cocoa can be wholly soluble in water. The term is generally applied to those forms of chocolate in which the whole of the matter is held in suspension. In other words, the materials are so finely divided that a very long time is necessary for it to settle when once suspended in milk or water. This object may be secured in two ways, either by a fine subdivision of the material or by the addition of foreign substances, such as starch or sugar, so that the specific gravity of the solution will be sufficient to prevent a rapid subsidence of the cocoa particles. The first method is decidedly to be preferred. It accomplishes the object in view and puts the preparation in better form to be acted on by the digestive agents in the stomach. Addition of starch and sugar, while not harmful, must be considered as adulterations.

Attempts at the preparation of easily digestible cocoas have also been made. In these preparations pepsin or some other digestive ferment has been added, but even this practice must be condemned as a species of adulteration.

The removal of the fat from cocoa in order to reduce it to a state of powder must also be regarded as a kind of adulteration. The fat is one of the most valuable and nutritive of the constituents of the cocoa bean, and should not be sacrificed in order to secure some commercial advantage. Other adulterants are iron salts, and other pigments to restore the color of preparations that have been highly diluted with flour or starch, and foreign fats to give to such adulterated preparations the normal percentage of fats found in the pure bean. The ordinary flavoring matters used are vanilla, cinnamon, cloves, nutmeg, mace, cardaman, Peruvian balsam, and artificial vanilliu. Starch, flour, and cocoa husks are the ordinary adulterants which can be detected by the microscope.

Wheat, maize, and potato starches are commonly employed in adulterating cocoa; also starch made from rice and arrow root, and flours made of wheat, rye, acorns, peanuts, raw malt, almond cake, and sawdust.

In 64 samples of cocoa bought in the open market, almost everyone was found to be adulterated with some added starch, usually a large quantity. The most abundant adulterant, however, was cane-sugar, often as much as 60 per cent. of the whole weight being composed of this substance.

The enormous profits of the mixers can easily be inferred from comparing the retail price of the chocolates and cocoas with that of flour and sugar. The retail price of the preparations examined ranged from 50 cents to $1.80 per pound. In the absence of any law fixing a standard for pure cocoa preparations, these admixtures cannot be regarded as illegal adulterations, but there is no doubt, whatever, of the nature of the fraud perpetrated on the innocent consumer. All these facts emphasize the necessity for the speedy enactment of State and National laws for the prevention of food adulterations.

Frauds in Coffee.

Modern agriculture is engaged in an unequal fight with frauds in food and drink of wide-spread extent and magnitude. Advancement in useful arts implies also increasing ability in those not useful. The three great functions of agriculture are those which look to the production of food, clothing, and drink, and in these fields of activity it has to contend constantly with the false and the adulterated. Attention has been called in these columns from time to time to the more important of these imitations and substitutes. There is one, however, yet to be described, which, in its ramifications and almost universal occurrence, is met with in every household.

Coffee is a beverage not only prized by the rich, but found also on the tables of the poor. In this country, at least, sugar and coffee can no longer be regarded as luxuries, unless it be conceded that the very poorest of our citizens constantly indulge in luxurious living. The consumption of real coffee in the United States amounts to about eight pounds for each inhabitant. This does not include the adulterations which creep into this justly popular article after it enters our ports.

Coffee consists of the seeds of the tree known to botanists as the *Caffea arabica*. Before use these seeds are roasted at a temperature about double that of boiling water. The coffee consumed in the United States is grown chiefly in Brazil (63 per cent.), Venezuela (12 per cent.), the Central American States (6½ per cent), Mexico (4 per cent.), Colombia (3½ per cent.), and the rest from Java, India, and Arabia. Very little coffee is imported directly from Africa.

Mocha coffee, grown in Arabia, is considered the best coffee of commerce. Large quantities of other coffees are constantly sold as Mocha. The seeds of Mocha are small and of a dark yellow color. Java coffee when new has a pale, yellow color, but when old is of a brownish tint. The high price of Java has led to the coloring of cheaper grades with mineral pigments or otherwise as imitations. The average composition of pure unroasted coffees is as follows: Moisture, 11.23 per cent.; fat and oil, 13.27 per cent; albumenoids, 12.07 per cent.; caffetaunic acid, 33.79 per cent.; caffeine (theine), 1.21 per cent.; ash, 3.92 per cent.

When roasted the average composition of pure coffee is as follows: Moisture, 1.15 per cent.; oil, 14.48 per cent.; sugar and caffetaunic acid, 45.09 per cent.; caffeine, 1.24 per cent.; ash, 4.75 per cent., and fiber, 19.89 per cent.

Ordinary sugar exists in coffee in large quantities, and can be easily separated in crystalline form. The active alkaloidal principle in coffee is caffeine, which is identical in chemical composition and physiological effects with theine, the active principle of tea.

Owing to the high price of coffee it is subject to numerous adulterations. In so-called blending it is common to introduce some of the commoner cereals. These act simply as a diluent, increasing bulk and weight, but giving the purchaser no increase in the valuable principles of the coffee. The same may be said of the use of chicory, but in addition it must be confessed that many persons prefer coffee to which a certain quantity of chicory has been added. The preparation and sale of such mixtures, therefore, would be perfectly proper were they sold as such.

It has been stated that chicory possesses medicinal properties of a diuretic and laxative character which render its excessive use objectionable, but there is no sufficient evidence of this. Chicory is the prepared root of the chicory plant (*Cychorium intybus*). It is a plant of extended habitat, growing luxuriously in our Northern States. It is detected without difficulty in coffees by use of the microscope. Ground chicory, when thrown in cold water, leaves brown streaks when the particles sink; while ground coffee does not color the water in like circumstances. The determination of the actual quantity of chicory which has been added to a coffee is quite impossible, but that is not a matter of any grave importance. It is sufficient to know that chicory has been added. Among other harmless substances which have been found in coffee may be mentioned parched mangold-wurzel, beets, all the cereals, beans and peas, acorns, sweet potatoes, etc. Nearly all these adulterations are easily distinguished by the form of starch granule peculiar thereto. In this country ground coffees bought in the open market are more often adulterated with some of the above-named substances than with chicory.

Canna seed has also been found in coffee, and sawdust was detected in some samples purchased in our own markets. Magdad coffee is the name applied to a preparation of the seeds of *Cassia occidentalis*. Magdad coffee contains a tannin, but no caffeine.

Mussaenda coffee is prepared from the seeds of *Gaertnera Vaginata*. Like the kind mentioned above, it contains no caffeine. Cocoa husks have also been found in ground coffees. To increase their weight pure coffees are sometimes coated with sugar or molasses before roasting. The caramel which is formed, while perfectly harmless to the health, must nevertheless be considered as an adulterant.

Facing and coloring coffee beans is objectionable, both on account of the materials used and because they prevent the escape of the moisture during the roasting process. It is quite common to treat inferior or damaged goods by some facing process to improve their color and general appearance, and thus secure a higher price on the market. This process, as has been intimated, is extensively practiced in order to sell inferior goods as Java or Mocha.

The exposure of Brazilian coffees to high, moist heat is said to change their color from a green to brown, and thus enable dealers to sell them for superior grades. Scheele's green is also used in coloring, and, in addition thereto, yellow ocher, Silesian blue, chrome yellow, burnt umber, Venitian red, drop black, charcoal, and French black. Coffee grains are polished after coloring by rolling in cylinders with soapstone, Raw coffee, which has been damaged by sea water, is washed, decolorized with lime water, again washed, dried rapidly, and then colored the required tint to represent fresh, high grade varieties. Indigo and Prussian blue are also frequently used in facing coffees. All facing materials are easily detected with the microscope or by chemical means, and in general the practice is one which should be condemned. No kind of facing can ever improve the quality of a coffee, and its sole object is always to give a fictitous value to inferior goods.

Many substitutes have been prepared for coffee, some of which have already been mentioned. Within a few years artificial coffee beans have been put on the market, and thus the protection formerly afforded the consumer in buying the unground beans is no longer reliable. Many samples of unground coffee bought in the open markets were found to be adulterated with these artificial berries.

Many of the so-called ground coffees on the market are imitations, pure and simple. They either contain no genuine coffee at all, or at most are mixtures of other substances with spent coffee grounds. Many of these are sold by the manufacturer for just what they are, but unfortunately they nearly all pass for pure coffees before they reach the cups of the defrauded consumers. The circulars sent out by the manufacturers of these imitation coffees are often quite interesting.

One writes: "I send you by this mail a sample of imitation coffee. This is a manufactured bean, composed of flour. You can easily mix 15 per cent. of this substitute with genuine coffee and it will improve the flavor of the same. It granulates the same as coffee. If you deal with us it will be in the most strict confidence." The manufacturer does not attempt to deceive the dealer but he takes it for granted that the dealer will impose on the consumer.

The chemist and microscopist have but little trouble in detecting imitation coffees. A simple test that may be applied by everyone is the following: As a rule, genuine-roasted coffee will float on cold water, while most imitation coffees will sink. There are, however, exceptions to this rule. Overroasted genuine coffee will often sink in cold water. The above test refers to the whole bean. Ground coffees may also be tested by the cold water method. Genuine coffee will either not sink, or if some particles do sink they will not color the water brown in their path. Chicory will leave a brown stain. Cereals will readily sink. Three samples of whole roasted coffee bought on the open market were adulterated with imitation beans. All the samples of green coffee bought were genuine. Of the coffees bought at random in the open market 86½ per cent. were found to be adulterated.

These are startling results, and represent the work of the Chemical Division of the Department of Agriculture, published in Bulletin 13, part seven. The chance for getting a genuine sample of ground coffee in the open market is indeed a slim one. Strange it is that our people calmly submit to such frauds, and that a bill which has passed the United States Senate to prevent them lies sleeping the sleep of death in the House of Representatives, a body which is supposed to represent, best of all, the will of the people. Coffee extracts are no better than the ground coffees. Some of them contain a little coffee, but they are mostly pure fabrications. My advice to farmers is to return to the good old custom of buying the green coffee and roasting it from time to time as it may be required for use. This is some trouble, but it is economy and a protection against fraud. No adulterated samples of green coffee have been found in the purchases made in the open market. But even here the purchaser must guard against facing, by which inferior grades are palmed off on him as the best Mocha and Java. Unfortunately there is much more Mocha and Java sold in this country than is imported, and the consumer pays the difference. The farmers of this country are entitled to a pure market as well as to protection against a foreign one. If they don't get it in this Congress they should ask for it in the next, and keep on asking until they do get it.

How to Prepare Rose Jars.

In the time when roses are in blossom, rose jars should be prepared for use during the rest of the year, and, by the way, the spicy fragrance is very delightful in a room, and since they can be made ready with so small an effort there is no reason why everybody in whose yard or garden are blossoming roses should not have at least one of them. There are a variety of recipes given, almost any of which will answer the purpose. The following are very good:

One-half peck of rose leaves to be placed in alternate layers with salt in a bowl; about a pint of salt will be needed. Cover the top with salt and keep about five days, turning over twice daily. At the end of this time add three ounces of powdered allspice, one ounce of stick cinnamon. Let it stand a week longer, turning it over daily. Then take the jar in which it is to remain permanently, put in an ounce of allspice, then rose leaves and salt in alternate layers, with a mixture of one-half pound of thoroughly dried lavender blossoms, one ounce of stick cinnamon, one of bruised cloves, one of coarsely-powdered nutmeg, one-half cupful of ginger root finely sliced, one-half ounce of anise seed, 10 grains of fine Canton musk, and two ounces of orris root sliced or powdered. Mix these ingredients well together. To this quantity add part of a bottle of Florida water and one ounce each of several of the following essential oils: Rose geranium, lemon, verbena, musk, rosemary, bergamot, violet, and jessamine. To this also might be added orange and lemon peel, pinks, tuberoses; in fact, any fragrant dried flowers.

A more simple recipe is one where the mixture is kept until well prepared in a stone jar with a lid. Throw the rose leaves into the jar fresh from the bushes, putting between each layer a spoonful of salt. Add leaves and salt every day, stirring the mass with a wooden spoon. In a month the curing is complete. Pour off the liquid, and transfer the rest to a china jar and mix with it the following spices: One-half ounce of cloves, one-half ounce of cinnamon, one ounce of allspice, one ounce of gum storax, one ounce of orris root, one dozen grains of musk, a few sage leaves and some lavender cut small, and two drams of spikenard. These should be roughly powdered or rubbed through the fingers, and well mixed through the leaves.

A Cure for Wasp and Bee Stings.

An examination of the part by a pocket microscope will show the sting, which should be immediately removed by tweezers. Anoint the place with a dilute solution of ammonia and apply ice. If the ammonia is not within reach, baking soda or any alkali will do. In the absence of ice apply a cold metal or stone.

Fly Exterminator.

Take one-quarter of an ounce of quassia chips and boil them 10 minutes in a pint of water. Strain the liquid and add four ounces of molasses. The flies drink eagerly of the mixture, which causes their speedy death.

ROOM ON TOP.

A Successful Virginia Trucker, and How He Manages.

EDITOR AMERICAN FARMER: In these times of close competition and hard struggles for existence, when it seems that only "the fittest survive," it is like a strengthening plaster to a weak back to be able to chronicle the success of a single individual. The tillers of the soil seem to be in hard luck—seem to be fighting an up-hill fight, and the general outcome of our agricultural interests seems to be doubtful, to say the least.

Of course, we cannot for a moment doubt but that ultimately the tillers of the soil will be on top; whereas now they seem to be at the very bottom. But the "top" is to be approached very gradually—so gradually, in fact, that many will "weary in well doing," and fall out by the wayside before success is secured.

The curt suggestion of "room on top" applies forcibly to the farming community. We have for a number of years watched carefully the course of one of our truckers near Norfolk, Va., and have been able to gather up now and then a great many facts concerning his business and his methods, and, best of all, his success. I do not mention his name, as he vigorously objects to being paraded in print, but the facts I state can be clearly demonstrated. He works about 40 to 50 acres in truck, and retails about one-tenth of his farm produce in this city, and the balance goes to New York, Philadelphia, Boston, Baltimore, Providence, Washington, and elsewhere, as the markets may justify.

A telephone connects his farm with the city, and in the early morning the telegrams from all important consuming centers are received in this city and telephoned out to him, so that he can the better determine what to ship, and how and where. Many of our truckers also have communication by "phone" with the city, and also have access to these telegrams from the consuming centers.

And right here let me suggest that of all wide-awake agriculturists, the trucker must be the most so of all. All the best markets are open to him, and he can reach them by water or by rail, or by both, and in such cases it is necessary that a man shall understand fully the condition and demands of the markets.

Well, our particular trucker friend that we started out to write about sends his market wagon on to this local market about 300 days in the year. And his average daily sales from that wagon will not fall far short of $50 per day. Multiply this by 300, and see what a comfortable sum it makes in the course of a year. We have an idea that he makes more clear profit from the one-tenth part of his truck sold on this market than he does from the nine-tenths sent North.

Now, this trucker is a worker, not so much with his hands, as with his head. His work is well done, done in season, and done in the very best manner possible. His crops are always good. He has the largest corn, the largest clover, the largest kale and spinach, and, in fact, the largest and best crops possible to grow. He can load up his market wagon to its full capacity with an assortment of truck crops in their season, and a load that will sell for $50 to $75, or even $100, at retail on this market, will make no perceptible difference in the looks of his crops. In other words, it is almost impossible to see where it came from.

Not so with the Western grower of wheat or corn. When he has taken out $100 worth of corn or wheat from his bins and wearily hauled it over a long road to the depot, it makes a hole in the crib. Our truck farms, all those that are properly managed, are very much like the "widow's cruse of oil," in that no matter how much is sold off there is always more to go. In fact, the thorough-going trucker has something to sell each month in the year.

In such a section as this, where the climate permits the growing successfully of such a large variety of soil products, and where the soil is adapted to such a diversity of crops, and where the market demands anything and everything that can be grown—in such a section, we say, "there is room on top." Where Winter rules the year, or where the markets are 1,000 or more miles away, the best intellect is handicapped, and it is hard for the best man to make headway. Here we have a man, who has, say, 40 acres in market garden crops, and he is so happily located that he can dispose and does dispose of about 10 per cent. of his crops on this market for the round sum of $15,000 per annum. Such a man is on top, and there is room on top for others. The advantage of a good local market are not to be overlooked nor carelessly estimated. It is true that, measured by freight rates, we are only about 50 miles from New York City, and that we can reach that market any day in the week by steamer or by rail, and yet this man, who can load his wagon with his own farm products and in an hour or two drive on to this local market, has advantages enjoyed by but comparatively few people in this United States of ours.

Within 10 miles of the city of Norfolk there are doubtless 2,000 truck farmers, who in all that goes to insure success have no equals in the range of the United States. They are posted as to the markets better than an equal number of farmers from any other section of the entire country. And yet the most of them are in the rudiments of their work.

No matter how skilful they may be as a class, there are always some on top, and "there is always room on top." Those that are down near the ground are likely to get smothered out, but those nearer the top have an excellent atmosphere—the atmosphere of success, which agrees with most people wonderfully. There is apparently no room here for ordinary truck farmers, but there is plenty of room on top.—A. JEFFERS, Norfolk, Va.

P. S.—Our weather is simply grand for the crops. We have been 7-10 of a degree colder than the normal since March 1, and our rainfall has been 26-100 of an inch more than usual.—A. J.

MARYLAND FARMERS' CLUBS.

General Discussion of Matters Pertaining to Farmer's Interests.

THE GUNPOWDER CLUB.

ON JUNE 4, by invitation of Col. Walter S. Franklin, this body held its regular monthly meeting at Sparrow's Point. The Colonel, who is the General Superintendent of the great steel works at that place, found some time since that his numerous and pressing duties forbade necessary attention to his farm, and relinquished his practical connection with agricultural matters, disposing of his handsome and beautifully-located property near Cockeysville, which, under his management, was becoming one of the most productive, as it was amongst the best equipped, in the County. He retains his membership in the Gunpowder Club, however, and its meeting in turn coming to him, he gave the members a variation from the usual routine in a day spent amongst the great plants of that extensive seat of industrial enterprises.

Taking a special car, provided by the Colonel, at Union Station, Baltimore, a ride of a half hour through the truck farms of "The Neck" brought the Club and a number of visitors to the Point. Here were found attached to an engine an observation car, on which the party was carried all over the works, visiting in turn the wharves, the furnaces, the Bessemer and steel rail mills, the ship building plant, with all the diverse and intricate appliances and machinery, by the agency of which the crude iron ore laid down on the docks is converted on the spot into great steel ships fitted to ply on stormiest seas. The stores and markets, bakery, and other accessory conveniences of a large city were also visited, and the beautiful Pennwood Grove, which affords space for recreation to the population of the town, as well as to many excursions from a distance.

After several hours spent in the inspection of the gigantic works, the Club assembled in the parlor of the restaurant, whose windows looked out upon the broad Chesapeake, an incident of the day being the passage to and fro in full view, during the session, of the vessels sailing in the regatta of the Baltimore Yacht Club.

So much time had been occupied in the tour of the Point that the usual half-hour for questions was omitted, and the proceedings of the day were limited to the reading of the minutes of the preceding session and the submission of the crop reports of the members for 1891, which is the usual order in the meeting. Many of the members, however, had concluded that sight-seeing would occupy most of the time, and but few reports were ready.

Edward Austen's Report—Wheat, 99¾ acres; yield, 1,937 bushels; average, 19½ bushels; sold at $1.04. Corn, 102 acres; yield, 1,027 barrels (5,135 bushels); average, 10 barrels; 8½ tons husk sold; 28 acres ensilage corn raised and fed. Rye, 22 acres; yield, 283 bushels; average, 13 bushels; sold at 97 cents. Oats, 98 acres; yield, 2,416 bushels; average, 25 bushels; at least one-fourth of crop being lost by rain at harvest. Hay, 202 acres; estimated to yield 360 tons, of which 25 sold; rest fed. All of the provender fed on the place, Mr. Austen keeping a large herd of Jersey cows, and running a dairy in Baltimore.

E. Gittings Merryman's Report—Wheat, 126 acres; yield, 2,800 bushels; average, 20 2-9 bushels. Corn, 85 acres; yield, 945 barrels (4,725 bushels); average, 10 2-17 barrels; 8 tons husk saved. Oats, 35 acres; average of 21 bushels saved, much being lost by wet. Rye, 25 acres; gave 400 bushels; average, 16 bushels. Hay, 294 acres; cut 360 tons; average, 1.15 tons. Sheep averaged 7 pounds of wool per head.

A number of Hereford cattle sold during the year at good prices; cattle fed and horses Wintered. Besides his own place, Mr. M. works the Hayfield farm, making a total of 760 acres under his management.

Abram C. Scott's Report—Wheat, 30 acres; yield, 690 bushels; average, 23 bushels. Corn, 25 acres; yield, 290 barrels (1,450 bushels); average, 11 barrels. Rye, 7 acres; yield, 84 bushels. Oats, 7 acres; yield, 189 bushels; average, 27 bushels. Hay, 40 acres harvested; yielded 60 tons; average, 1½ tons. Barley, 4 acres; gave 195 bushels; average, 49 bushels.

Mr. Scott grows many minor products, which add largely to the proceeds of his well-kept farm.

W. W. Matthew's Report—Wheat, 20 acres; yield, 421 bushels; average, 20 5-6 bushels. Corn, 21 acres; gave 210 barrels (1,050 bushels); average, 10 barrels; 4 tons husks sold. Rye, 10 acres (corn ground); produced 121½ bushels. Oats, 3 acres; gave 90 bushels. Hay, 30 acres; cut 37 tons. Potatoes, half an acre planted, gave 100 bushels.

From Mr. M.'s farm a great many items of butter, poultry, fruit, not recorded in the returns go to market.

In consequence of the regular date of the July meeting coming in the midst of harvest, it was determined to intermit it, and the August meeting will be held at the farm of Samuel M. Price.

A vote of thanks was given by the Club to Col. Franklin for the pleasure afforded the Club in the day's departure from its usual routine; and the meeting adjourned to take the return train to Baltimore.

The June meeting of the Deer Creek Club was held on the 11th, at the farm of James W. Hanna. The usual tour of inspection showed, according to the committee, that it was in excellent condition and, notably, neatly kept. He had a promising garden, a handsome lawn, and fine cows and hogs.

The Club left its usual routine to hear an address from B. Howard Haman, a prominent member of the Baltimore bar, on the connection which might be established between the oyster beds of the Chesapeake Bay and good roads throughout the State. He had himself become interested in the oyster question by virtue of being an Eastern Shore man and as counsel for the Canned Goods Exchange, and had presented several bills to the Legislature proposing to regulate the oyster industry, none of which became laws, though one came within seven votes of its passage, which provided that the oyster beds should be leased at $1 per acre. The shore owners were to have by its provision, for 90 days, the right to take first choice of oyster bottoms, taking not more than 100 acres each; then the boatmen were to have second choice for 90 days, and after them any citizen could take up a tract. Packers opposed this because it did not permit them to secure large tracts, and the boatmen objected to "propertyizing" the bay, whilst the commission men feared to lose $100,000 a year from commissions.

Mr. Haman showed how a system of oyster planting would affect farmers in Counties not on the bay. It could be made to yield a revenue that would not only pay the expenses of the State government, but yield enough money besides to improve the County roads. There are 400,000 acres of the bay now barren, but fit for producing oysters. The area from which oysters are now taken, natural bars, is 200,000 acres. It is not proposed to take these from the boatmen, but to plant the barren bottoms.

In Connecticut, the natural bars are depleted, but a system of planting has resulted in a supply which is sent to Europe, and even to Maryland. New Jersey plants oysters costing 15 to 25 cents a bushel, and sells them when grown at 75 cents per bushel. Rhode Island has only 1,000 acres of oyster beds, but derived from them in 10 years a revenue of $82,000; but Maryland, with 600 times the area of beds, has made in the same time a deficit of $130,000.

Planting the barren bottoms would increase the taxable basis of the State and wipe out the State tax. The 200,000 acres of natural rocks yield 10,000,000 bushels a year, and at a low estimate the 400,000 acres of barren bottoms would double this supply, affording employment to twice as many persons as now engaged, and give a revenue to the State of half a million of dollars.

In addition to the yearly rent they yield, these bottoms could be taxed proportionately to their productiveness. Connecticut oyster lands sell from $30 to $2,500 per acre, although there the starfish, from which Maryland is exempt, commits great ravages on the beds.

Who will begin the system proposed? Not the Eastern Shore Counties, where the boatmen are numerous and a terror to both political parties. The farmers in Counties not on tidewater or not interested directly in oystering ought to take it up. There is something in it for them. They can wipe out the State tax, and have, besides, a large sum annually for public roads. The Eastern Shore thinks it alone has a title to the bay, but why should not the whole State benefit by this developed industry?

Farmers are a potent force, but need organization to make their power felt. Here is a question on which all can unite, but it will arouse intense prejudice on the Eastern Shore. It was suggested that after awhile individuals should protect the beds themselves, and thus save the cost of the oyster navy. Now the State appropriates $15,000 a year to have shells put on barren bottoms for the oyster spat to adhere to and grow on, but they have not been put in proper places. The State does nothing to increase the oyster beds, and the work had better be committed to private hands.

Mr. Haman was thanked for his address, and it was proposed to call the other farmers' club of Harford and other Counties together to organize a State Road League, and to consider simultaneously the road and the oyster questions.

The Cecil Club held its June meeting on the 15th at Wm. W. Moore's farm, near Colora, which, as usual, was inspected by a committee, who reported the stock in excellent condition, the premises in neat order, and the growing crops very promising.

A member asked Mr. Moore how to account for the excellence of his field of timothy, and how long it had been in grass, and he replied this was its fourth year, and that last year he had top-dressed the field with barnyard manure, intending to put it in corn this Spring; but the manure acted so favorably, and the grass was so well set, that he concluded the grass crop would be more profitable than the corn.

Mr. Moore read a paper to the club, which he entitled, "Reflections for the Farmer." He asked whether our farming has been as well done as would have been to the greatest advantage? Have the members done their utmost to promote the prosperity of and encourage the farmer?

To succeed in any business requires mind, enterprise, and care. If we aim to escape work, we will not succeed in any occupation. Croakers say "farming don't pay," but farming will pay those who exert themselves. It is not the farm that fails, but the man. Whilst some give up their farms, defeated, others grow rich. He who considers a farmer's life drudgery does not understand the word.

It is a waste of time to report failures in farming; the successes should be held up for imitation, for what one farmer does another can equal or surpass.

When we see more than labor in our business, find enjoyment in its wondrous transformations, and reflect how far above all other callings is its usefulness to man and its closeness to nature, we will not consider it lacking in pleasure. It is ignorance and narrow views that belittle farming. The successful farmer not only secures the highest profit, but is surrounded by objects of beauty. The fruits, the

grasses, the grain, the stock, whatever reaches its highest fitness for its destined purpose, is beautiful.

Farmers are isolated, and consequently their minds are not sharpened by the friction of society, where new ideas are suggested and developed. They become a conservative class, and need a stimulant. There is none better than a farmer's club! We have much to encourage us in our occupation, if we have spirit and enterprise. But if slothful and unambitious, we will soon despair, drop out of sight, and others will fill our places.

Col. J. R. Bond said the paper was intelligent, to the point, and well done.

Thos. C. Bond said Mr. Moore's work as an agriculturist justifies his conclusions.

Enoch Noyes said the views were too roseate; not justified by the condition of the farming interests generally, or the embarrassed situation of the agricultural classes in the great grain-growing districts, east and west.

Jno. P. Wilson thought the picture well drawn of the possibilities of the farmer's life.

Hy. S. Condon did not believe the opportunity of success equally open to all men engaged in farming pursuits.

Wm. E. Gillespie said the condition of Mr. Moore's farm practically exemplified the correctness of that gentleman's views.

G. W. Sutton thought in any line a man must be in love with his business to succeed at it.

The club resolved that it would be willing to hear Mr. Haman present the relations between the State's oyster industry and the maintenance of good roads in the Counties.

FARMERS TO THE FRONT.

Kansas Republicans Head their Ticket with Three Genuine Farmers.

Kansas is one of the States always swift to respond to the demands of the people. Just at present the farming element is calling for larger recognition, and is getting there in great shape. The three nominees who in line head the Republican ticket in the Sunflower State are farmers. Abram W. Smith, an old soldier and a farmer of McPherson County, for Governor; R. F. Moore, an old soldier and a farmer, for Lieutenant-Governor, and W. C. Edwards, a farmer of Pawnee County, for Secretary of State. The last nomination is a special recognition of the "young" crowd, as "Billy" Edwards carries fewer years on top of his curly head than any man who was ever nominated to a State office in Kansas.

HON. A. W. SMITH.

Abram W. Smith, the nominee for Governor, was born on a little farm up in Oxford County, Me., Oct. 18, 1843, and lived there until the civil war fired his boyish heart with patriotism, when he shouldered his gun in October of 1861 and went to the front. In the Army of the Ohio, he fought with Grant at Bowling Green, Fort Henry, Donelson, and Corinth. At Shiloh his regiment, the 19th infantry, was nearly wiped out. Recruited, it suffered almost total annihilation at Chickamauga, and those not killed were taken prisoners and hustled off to Richmond. Later they were introduced to Danville prison hospitalities, and finished up with 19 months in Andersonville. In 1865, after serving four and a half years, Mr. Smith was mustered out of the service. Barefooted, emaciated, and racked with disease, he was sent out into the world to take up the broken ties and piece them together again. Good nursing at home saved him for a life of great usefulness, but only after a hard battle with the grim conqueror.

In 1866 he left home to seek his fortune. He had nothing in his pocket, but was rich in an honest name and pure manhood. The first work that offered itself was that of a day laborer in the Cambria Iron Mills in Johnstown, Pa. He remained there six years, rising steadily in the estimation of his employers and in position, till he became a Superintendent. He was, however, by birth and inclination a farmer, and went West in 1872 seeking his ideal. Out on the wind-blown plains of Kansas, where the buffaloes still fed, and the war trails of the Indians were not yet grass-grown, he took his "claim" in McPherson County, the homestead of 160 acres that Uncle Sam gave to the "brave boys of '61–5" who cared to take it. There he made himself a home, and took to it his wife, a charming woman, who has been a gracious and helpful mother to a houseful of sturdy sons and lovely daughters.

The Smith homestead is one of the model farms of Kansas. During the first years Mr. Smith performed all the labor himself, and is yet one of his own best "hands" in the corn or hay field, in seed time or harvest. In 46 hours after his acceptance of the nomination for Governor he was back in the harvest field.

Mr. Smith has been four times honored with a seat in the Legislature. The first nomination in 1875 came to him unexpectedly, and his neighbors informed him of it on their return from the convention. He declined renomination after the third term, desiring a rest. Two years later he was elected almost without opposition, and was made Speaker of the House by unanimous vote of that body.

He is a skilled parliamentarian, ready in debate, convincing in style, and effective in argument. A man of fine physique and powerful voice, he commands attention in any crowd. Mr. Smith is now President of the National Farmers' Congress, and has been for years at the head of the State Board of Agriculture. It was through his efforts that the Kansas World's Columbian Exposition Board was organized, and he was put at its head. He is a member of the Alliance, but is decidedly against Third Party interference in that organization. He was offered the Governorship on a Third Party platform four years ago, but, although failing the nomination he sought in the Republican State Convention, he emphatically refused to betray the party with which he allied himself when he cast his first vote for Abraham Lincoln while in Andersonville prison. His popularity throughout the State was so great that his election would have been assured in the midst of the mighty upheaval then in progress.

The farmers of Kansas appreciate the honor of this nomination, for while Mr. Smith has never been anything but a farmer, he has neglected no opportunity to inform himself thoroughly on all subjects of vital interest to the farming world, and will take to the gubernatorial office a clear understanding of the necessities of the hour and a keen-sighted executive ability, which will enable him to shape legislation in the direction demanded by the agricultural classes.

Abyssinian Fashions.

The fashions of the women's headgear are various, and do not differ much from the mode of the men. The hair is worn short and curly, or in thin plaits taken from the forehead back over the cranium in corduroy fashion to the nape of the neck, where it narrows and is fixed up in a knot. Young girls will shave their scalps close, leaving a halo of fringe, perhaps terminating in loose streamers behind. This fashion is indeed very pretty, especially when framing handsome faces, which are by no means uncommon in Abyssinia. Drapery thrown about their well-shaped figures (worn when their gowns are in rags) makes them absolutely statuesque, and these damsels would be attractive but for the nasal as well as the optical knowledge of their uncleanliness.

An Ethiopian will tell you without a blush that he is necessarily washed at birth, cleans himself on his marriage morn, and hopes to be washed after death; that once every year he dips himself in the river on the festival of St. John the Baptist, and regularly every morning he wets the end of his toga with the moisture from his mouth and freshens up his eyes. Whenever he feels his hide harsh and uncomfortable, he anoints himself with mutton fat. Of a morning one may see the *jeunesse doree* of a town stalking with body erect, and with about a pound of butter stuck on their heads, gradually melting under the increasing power of the sun. The men may look a shade cleaner occasionally, caused not by any act of their own, but through the accident of being for hours in a rainstorm, which at this season occurs daily; but even then the odor of rancid mutton fat impregnates the atmosphere wherever they may be.—*Frederic Villiers, in the Century.*

Wholesale Elephant Hunting.

New happy hunting grounds have been found by Mr. Savi, the renowned Superintendent of the elephant kheddahs at Dacca, with the result that he has brought down this season the enormous number of 266 of these unwieldy animals from the heart of the Garo Hills. It is probable that they had never before seen a human being, and they were certainly unaware of the arts by which elephants are caught, for hitherto this large tract of country had not been hunted, owing to the difficulty of making a road by which to get out the new captives. It had become important that the old hunting districts should have a rest. Now that the Garo Hills are brought within reach by Mr. Savi's enterprise, it is thought the risk of exhaustion in the old hants will be minimized.—*London Star.*

THE WOLVES.

A Story of Norwegian Life and Love—A Battle With the Gray Murderers.

BY EDEN PHILLPOTS.

HERE the fir trees began to grow less closely; where, between their tall trunks and in their black foliage, gleamed a few crimson splashes of fire as the sun sank below the horizon; where the snow lay deep and unspotted, save by the multitudinous prints of their own restless feet—there, on the outskirts of the forest, at the wane of day, the wolves were gathering themselves together. Hungry they were, and eager for work to begin. There was no play among them, no leaping over one another's backs, or wrestling, or growling pretenses at fighting. They were on business—the first business of life, to keep life, and to keep life, if you happen to be a wolf, means hard work and plenty of it, with but little time to spare on the amenities of existence.

And now their old gray leaders—warriors who have survived many a scene of death and disaster to man and wolf—leap out together from the woods upon the darkening plain. They raise their noses, sniff the wind, and shake themselves. One yawns and stretches his paws, while a puff of hot breath rises from his red tongue, and, as he shuts his narrow jaws with a snap, sharp canine teeth, white as the snow itself, glitter in the dusk.

Then begins that long, slouching, tireless trot, that infernal gallop which beats horse and man and all things living for combined speed and endurance. The pack covers nearly five-and-twenty square yards of snow, and settles into its stride, each beast moving and turning in unison with the rest, as a flight of birds mysteriously wheels in air. They are Norway wolves these, and experience has long since taught them what work will be necessary before supper and a return to their forest fastnesses.

Note what happens almost at the start. One lithe brute suddenly slips and strains his leg. Fearfully he glances at his companions on the right and left, but as yet they know not of the accident. All too soon, however, the pace tells upon the injured animal. Nature asserts herself in the great gray wolf, his eyes glow like red-hot embers, his sinewy leg gives under him, he howls his farewell to dear life, and his place in the ranks knows him no more. But the maimed creature's sufferings are over almost instantly, for the fittest alone survive in a pack of wolves. A ravenous fighting mass of fur and legs and teeth closes in upon him, and he is gone, leaving no monument more enduring than drops of his own hot blood, which have fallen and melted for themselves deep holes in the trampled snow.

Then forward they sweep, the cannibals, on the best possible terms with one another, and feeling as you would feel after anchovy or an olive or some such preliminary to more important gastronomic efforts.

But now, ahead, there stands a solitary tree, naked save where, on its topmost branches, the dark pine needles mingle in one shapeless clump, or where, lower down, dead cones still cling to the parent bough. In the rough bark at its foot are flecks of wool; but the sheep which rub themselves there in the Summer are far away just now. Something of greater interest meets the wolves here. Along the snow at the base of this tree, and running at right angles to the course they have, till now, been taking, extend two parallel lines, cut by the irons of a sledge. One vehicle alone has passed since the snow last fell, but it appears to have gone by quite recently, for the scent is strong and the pack take it up without a moment's halt. Now supper becomes a probability, for where there is a sledge, there is a horse, perhaps two; where there is a sledge, there is also a man, possibly more than one.

Have you ever heard the howling of wolves?

I have, seated in a comfortable place of entertainment, with my mind at ease and certain knowledge that many iron bars separated me from the invisible howlers. Even under those circumstances, the sound was one that made me turn cold and wonder how nature had produced anything so hideous. It is like nothing but itself; you cannot compare or contrast it with any other cry of living things; a gale of wind in the rigging of a big ship at sea is the nearest approach to it I know. Thin, hollow wails of sound grow and swell and burst into one demoniac howl that embodies in its volume every conceivable note of despair and eternal torture. Then the crescendo dies, sometimes as though suddenly strangled, more often in long-drawn shrieks that fade upon the ear. There is music in their cadence at times; those that I heard were fairly in tune—but such a tune, such a droning, fiendish, whirling blast of melody it was. If the nether world has its own music, that music should be the howl of hungry wolves—the frantic chorus whose culmination is death to flying singers or fleeing audience or both.

So much for the wolves I know; so much for wolves whose hearts are broken and whose sides have ached often under the heavy whip of their master. So much for tame wolves who do clumsy tricks and have learned the beauty of obedience, forgetting, at the same time, the watchword of all wolves—that union is strength. Return we to my pack, which is moving like one big machine, and the component parts of which are together giving tongue.

The snow, for them, is in perfect order; but somebody ahead may perchance find his horses crushing through the thin frozen surface at every stride. The darkness suits the hunters well, but somebody ahead may be praying for that moonlight which at present only shows silver fringes a black cloud. To them their wolf music is the dinner-gong; but somebody ahead may hear nothing more beautiful than his own passing bell in the distant ululations, rising and falling and coming over the snow.

Fortunately, thought and a pen travel quicker even than gray wolves; therefore, though not knowing with certainty whether it can catch us again before the end of the story, we will leave the racing pack and draw level with the sledge.

Here it is, sure enough, plowing through the snow and spinning out those two parallel lines as it goes. The stout brown horses are galloping steadily, and the solitary man sitting behind them does not use whip or word at present. He must be some miles nearer home ere the last struggle begins, and he not only knows the road well, but can also guess with tolerable accuracy at the distance which still lends enchantment to the wolf music in the darkness behind him. Physically, Rollo Svantsen is a typical Norwegian, strong, and in the prime of life. He has been in passing peril from the wolves before to-day; the rug now wrapped about him, one corner of which flaps and rustles in the snow, is made of wolf-skins. To-night he appears anxious, however; his horses are powerful but not fleet, and in his judgment, when the journey is ended, there will be a very short quarter of a mile between his sledge and its pursuers. As though to encourage him, the moon at last rises free of the far-stretching cloud that till the present has hidden it. A clear, white light floods the darkness, and the snowy plain begins to widen out upon every side as the driver, rising in his seat, casts one searching glance ahead, looks to the fastening of a big leathern bag which is tied to the floor of the sledge, and then gazes long and carefully behind him. Yes, there they are, just a little dark shadow on the waste, a shadow which one less experienced might have overlooked altogether, but a shadow that is moving hardly less quickly than those cast by the rack of broken clouds drifting across the moon.

What Svantsen had seen in front of him was a black line on the horizon and a tall finger post, still far ahead, where two roads met. What he had not seen was a figure on foot, traveling toward the same black line upon the horizon.

The pedestrian is moving but slowly, and has very little more running left in him. The snow retards every step and clogs in lumps upon the heels of his boots. There is no track to go by, but he keeps as straight as he can for the tall finger post. To reach the black line before those flying feet in the rear have closed with him is, he knows, impossible, and yet he staggers forward. He cannot help himself. The instinct of self-preservation would make him struggle on even though safety were 100 miles distant instead of scarce five. And on he will drag his tired body till he drops or till the wolves pull him down.

Then comes—think of it—the sound of sledge bells in his ears, the only earthly melody he knows that, in his present sore strait, can mean succor and salvation. He heeds it not at first. The Norwegians are a superstitious folk, and our poor wretch thinks that the night demons are abroad, dancing in the drifting snow wreaths, laughing at his agony and tuning the distant howlings into the sound of bells.

Sledge bells do not always make music. There is nothing to suggest pleasure and plumes and nodding of proud equine heads in the harsh jangle that now rushes down upon the traveler. Svantsen's horses have long since caught the distant chorus and their ears are beginning to lie back and their necks to stretch out. Jangle, jangle, jangle, thud, thud, thud, go hoofs and bells. A hot steam streams away from the animals and the bright red ray of a little lamp in front of the sledge casts a glow upon their sweating flanks. The driver is standing up now and unwinds the lash of his long whip. His hat is off and he looks with a frown behind him. To us horses and man and vehicle seem but the incarnation of flying terror; to him on foot a chariot sent straight from God.

And thus they meet, these men, than whom all Norway could not show two enemies more bitter. They are dwellers in the little village of Joksdal, in Finmark, the most northern division of Tromso, or northern Norway. There had their fathers lived before them, and there had Svantsen, rich, proud, and the autocrat of his birthplace, cruelly wronged Eric Skien, a young herdsman and a poor one.

An old, stale story it was, of two men loving the same woman. Young Eric had been everything to her until the other came creeping into her heart, ousting the old love and replacing it with one 10 times as powerful. She dared not to tell her betrothed, and upon the very eve of their marriage Svantsen had stolen the girl away with her own consent, married her in a distant hamlet, and then returning, braved the black storm of rage that swept over him. All believed this step to be one of most lawless abduction upon the man's part, and he, only thinking for his wife and her reputation, was content that in such a belief Joksdal should remain. Eric Skien, however, was wiser. He had long noted the change in his sweetheart, and the blow did not fall so heavily upon him therefore as his

friends supposed. He was a good-hearted, easy-going, loutish fellow, not overquick of comprehension, but a popular man among his comrades and one with a kind soul in him. That he would nurse his revenge until it grew into something strong and terrible and could walk alone was the general opinion in Joksdal. But Skien breathed no word of his future intentions to anybody, and went on living and working tamely enough, though with most of the laughter and rough frolic blotted out of his life. It is improbable that he would ever have seriously set about retaliation or gone far out of his way to get it. Dwellers in northern lands, all things being equal, are not so fruitful of violence and the knife as hot-blooded men of the South. Nor have they quite such keenness and capability for either suffering or joy. Their sensibilities are somewhat more blunt and there is more prose and less poetry in their lives, less sunshine and more hard work. I speak, of course, of the lowest social classes; Skien was a shepherd; Svantsen the keeper of a small inn.

And now—a year after the catastrophe—they meet, the one flushed and hot and nearly spent with his hard running, the other cold and white, and with all his wits about him. Skien, thinking to see a friend looks up at the man in the sledge. As he does so anxiety changes to incredulous and savage joy; the howl of wolves falls unheeded upon his ear; he clutches hard at something hidden in his belt and shows his teeth. The other, with an iron hand upon the reins, checks for an instant his flying sledge and keeps pace with his old enemy. One of the struggling horses, arrested in his fight for life, neighs and plunges to be free. The bells clash and jangle; for a moment the hungry throats behind are silent; over all the moon shines bright and cold, bringing out every detail of the scene as clearly as daylight could.

Rollo Svantsen speaks first.

"Ah, friend Skien, thou wilt have to go at greater pace than thy present jog if Joksdal is to see thee again. Graabeen* travels a world faster, and is now nearer to thee than thou art to home. Wilt deign to accept a seat? If so, it is at thy service."

"At last we meet, then," gasped the other, "I had rather see thee than the truest friend and strongest horse in Norway. At last thou art in my hand, Rollo Svantsen. Nay, stay thine horses, or I will do it for thee."

"Fool! Thou do it? Could thou stop me a year ago? Then think not to hold back those mad brutes here by any act of thine."

For answer Skien leveled a pistol at the head of the horse nearest him. The barrel flashed in the moonlight like a knife, and Svantsen, choking in his throat the cry of horror that rose into it, pulled at the reins, and nearly overturned the vehicle he drove.

"This is no time for jesting, man!" he cried. "Leap by me, and do it quickly, or we shall both be lost."

"And why not? Thou has left me nothing to live for. Everything that was good to me in the world has been taken by thee; now it is my turn, and I could slay thee, but that I had rather leave it to those behind."

While the horses were nearly dislocating his shoulder-joints, Svantsen made answer:

"Think not I fear death any more than thee. If thou willest that but one of us shall reach his home I care not. I plead not for my safety, least of all at thy hands, but others plead for it. The past is past, the wrongs I have done to thee are past, and past atoning. Slay me if thou wilt, it is but justice, but be generous in thine hour of triumph. Save thyself, Skien, I implore it, and see that what is now in the sledge be given to those I leave behind. Declare, when questioned, that I fell from my place and thou couldst not stay the horses to save me."

So he spoke, and a great wave of feeling passed through the other's mind. Never had his heavy brains been so stirred; never before had the possibility of noble and heroic actions entered them. Like a dream-picture, as his enemy's words fell upon his ear, he saw the girl at home nursing her baby, saw the sledge dash through the village street, saw the husband reel into the strong, outstretched arms of his friends, and heard the wife's cry of thankfulness to God. That was all; no vision of his own figure in the story obtruded itself. A flash of lightning could not be quicker than the thought, as it filled his brain, and transformed every ambition, passion, desire.

"True," he said, "I have no quarrel with those in thine home. Thou art a husband and a father—I had forgotten. Get you gone, Svantsen; my eyes are opened now and I see far ahead. Fly, man, while there is yet time; take these pistols with thee, too, and remember in the days to come there was no evil between us at the end. Go, I say, the horses are killing themselves."

He held up the weapons, and finding that the driver was too occupied to take them from him placed both pistols at his feet in the sledge, as Svantsen answered:

"Sayest thou this?" he cried. "By Heaven, Skien, such an enemy as thou makest is worth a thousand friends. Leave thee, man? Never! Mount, I command it, else I will shoot these frantic beasts myself. God willing, we shall yet sleep in our homes to-night; if not, then together here."

Eric hesitated for a brief moment. The thought of a great sacrifice was strong within him, but his old enemy would not be denied. His will was as powerful as the other's, and most assuredly both men must have perished had not Skien relented. At last, therefore, yielding to Svantsen's entreaty, he crawled exhausted upon the hinder seat of the sledge and, not a moment too soon, the men were whirled away together.

(Read, without haste, the above duolog; if timed, would be found to take two and a half minutes. In fact, however, it barely occupied two.)

Five short minutes later the wolves arrive upon the spot where the snow is trampled and Skien's footmark cease. Now they are racing, and the quarry shows up black and clear against the snow, little more than a mile ahead.

Let us once more hunt with the hunters and watch with them as, their feet falling like the pattering rustle of rain, they came on, one hurtling against another. Their mouths are open, the hair upon their backs is beginning to stiffen and stand on end, their phosphorescent eyes are fixed upon the flying sledge. A long, stern chase it has been, and seems like to meet with a grand reward, if all goes well. So yard by yard they get upon better terms with the vehicle. True the black horizon gradually changes into irregular outlines of a pine forest; true, also, beneath the trees gleam sparks of red and yellow fire that suggest human habitations. But Joksdal is distant a mile yet, whereas 300 yards alone separate wolves and men. Now a long pull, a strong pull, a pull altogether, and then—supper.

Like the bellows of a forge sob the horses and need not the heavy whip, though that now and again hisses in the air over their heads. Great jets of steam burst from their gaping nostrils, and they show the bloodshot whites of their eyes. Since Skien got upon the sledge not another word has been spoken. Svantsen drives with magnificent nerve and judgment, keeping the horses steady, but getting every inch out of them he can. If either comes down it must mean certain death for all. Skien sits crouched up at the back of the sledge, with his face to the oncoming multitude and a pistol in each hand. Nearer get the wolves and nearer. They are now going about 20 yards in a hundred quicker than their prey. The big sledge rug manufactured from skins of their defunct kindred is thrown to them; but what are dead wolves' coats as an article of food compared with the shining sides of those galloping animals, now only 50 yards in front? It hardly stays them for a moment.

Joksdal is still nearly a quarter of a mile off. Svantsen jodels, and the clear notes go echoing forward to the village and back to the wolves. They give tongue again in answer and strive each to be alongside the horses before the other. That last long-drawn howl may save the sledge, for it has told those at home everything. Svantsen sees lights flashing in the distance and knows that doors are being opened, dogs let loose, and guns hastily snatched from their places. Twenty-five yards only now between the sledge and the foremost wolf. Skien cocks his pistols and keeps cool as a statue. Graabeen No. 1 is a grand, determined fellow, believe me. They look at one another, the man and brute, and there is more expression now in the wolf's face than in the man's. One, reckoning without his host, his shark's eyes glittering like stars, is divided between an attack upon Eric or the horses. The human being feels a pistol trigger under each forefinger and waits, for it will not do to miss. Twenty yards, 18, 15—then Svantsen shouts to his comrade:

"The dogs are coming!"

Skien does not answer and keeps his eyes upon the foremost wolf. Ten yards off he is now. The deep baying of big dogs and the shouts of men mingle with the cry of the wolves, the snort of the horses, and the bells ringing on over everything. Then Skien feels the sledge slacken speed and raises his arm not a moment too soon. Graabeen No. 1 sees a stream of fire dart toward him, feels a terrible blow in the chest and falls, writhing, bleeding, and gnashing his teeth in the cold snow. Some among his companions stop to do the last honors to their old leader, but more than half keep on. Skien shoots another, and, hurling his pistols with tremendous force among them, breaks the leg of a third. Svantsen gives the horses their heads and strikes at the long, gray brutes now streaming upon either side. Here come the dogs at last, fresh and full of fighting. Twenty there are, if not more, all eager for a tussle with the universal enemy. They rush into the wolves, and at the same moment one of the horses comes down with a crash, struggles upon his knees, falls again, shrieks, tries in vain to rise, and rolls over beaten upon his side. The other, breaking his trace and lashing out, comes near braining his driver, but instead catches a wolf which has just jumped at Svantsen fair in the chest, and hurls him back five yards. Skien has wound his coat round his left arm and uses a knife with his right. The freed horse, with a dozen wolves leaping at its head, runs straight into the rescuing party. Then torches gleam and men yell and fight hand-to-hand battles with gant, draggled brutes that snap at their throats, fill the air with the strong vulpine smell of their kind, and when a blow gets home howl and kick out their lives in the reddening snow.

It was a notable and terrific battle while it lasted, and forms topic for conversation to this day in Joksdal. Half the dogs were killed, and more than one brave man who rushed to the rescue will carry deep tokens of the fight to his grave. Svantsen came worst off. His left arm was badly torn, and one bite in his throat must have been fatal had the brute who made it jumped a little stronger. Skien fought like a demon, and escaped marvelously, with scarce more than an ugly scratch or two. One horse died where it fell, the other escaped with its life, but was ruined for all practical purposes. Svantsen's wife, however, looked to it that the excellent beast should live the remainder of his days in honored idleness.

And the wolves, though decisively beaten, cannot be deemed disgraced. Upon the field they left four and twenty slain and some eight or nine wounded to the death. Deeply dejected, torn, maimed, and exhausted, the survivors got them back to their desolate forest homes; and, maybe, the God that sees fit to let them live provided an adequate meal before the moon had set.

*"Graabeen:" The peasant Norwegians have a superstitious objection to calling many familiar animals by the name proper to them. "Graabeen" signifies "gray legs," and thus do they always refer to the wolf. At this present time the heart of Norway can show more primitive peoples, dialects, and beliefs in superhuman agencies than any other European country.

For, mark you, those wolves, without exactly appreciating the fact, had achieved a great and splendid work. They had brought to the surface much that is noble in human hearts; they had in two short minutes done that which years of time might not have done; they had destroyed a bitter feud and built upon its ruins a friendship which will stand while the friends have life.—*Longman's Magazine.*

His Third Punishment.

The story is told of a missionary who, as a certain old Vermont farmer remarked, "has been unfortunate in his wives," says the Pittsburg *Dispatch*. This missionary had married in this country and taken his wife with him to India. There, after two years, she died, and the broken-hearted widower received permission from the missionary society of his church to come home. Here he promptly consoled himself, and with his second spouse returned to the field of his former labor. But fate was still unkind, and at the end of a year he was once more bereaved. Again he besought the permission of the board to return home, but this time they gently but firmly declined, saying that they did not feel justified in the expense of giving him two vacations within two years.

They suggested, delicately, however, that if his desire was to recoup himself for his recent loss it was possible for him to deputize a friend to secure for him a new partner of his joys and sorrows. This he accordingly did, and after considerable correspondence and sundry delays the twice bereaved widower received word that the bride selected for him was on her way to his arms. The day the steamship was signaled the bridegroom-elect went down to meet it, accompanied by a married friend. On the return of the latter to his house he was pounced upon by his wife, who demanded all the particulars of the meeting.

"Did Dr. Smith seem much overcome when he saw Miss Brown?" was the first question.

"Well—yes—a little."

"Wasn't he overjoyed?"

"Well, overjoyed is not just the word, perhaps."

"Why, didn't he say he was delighted?"

"Well—no—not exactly."

"But at least he seemed pleased?"

"Well—I don't quite know."

"For mercy's sake, tell me just what he did say and do."

"Well," with evident reluctance, "when he saw her she was at the other end of the deck and she was pointed out to him by the friend she had traveled with. Smith looked at her for a minute and then passed his hand over his eyes and I heard him murmur: 'Red hair—for the third time—and after so much prayer!'"

The New Safety Car Coupler Adopted by the Railways.

In October, 1890, the Committee on Safety Appliances recommended the adoption of the Master Car Builders' type of coupler as the standard of its members. Out of 50 companies voting but two dissented, so it may be said that in 1890 this coupler was recognized by the railroad companies of this country as their standard, so far as this could be done by their organized action. From statistics recently obtained by this association we have reason to believe that couplers of the Master Car Builders' type have now been applied to 200,000 cars, or about one-fifth of the freight cars in service, and also to 25,000 cars now under contract. From what is here stated it will be seen that the railroad companies through their technical officials have devised a type of coupler which does not require the introduction of body or limb between the cars in the process of coupling or of uncoupling. The device is manipulated by a rod, one end of which projects beyond the car body in such a position that it can be safely handled even by a person unaccustomed to its use. The cost of standard couplers for the 900,000 cars now equipped with link-and-pin couplers will not be far from $25,000,000.—*North American Review.*

What Salt Will Do.

The common table salt is one of the most effective remedies for many ills.

For nasal catarrh, make a weak brine of salt and tepid water and snuff up the nose, allowing it to run down the throat. If persistently used it will in a sufficient length of time cure the nasal catarrh.

Common rock salt, dried in the oven and then pulverized, mixed with an equal part of spirits of turpentine. Keep a rag wet constantly with this preparation for 24 hours. It will surely cure a felon in that time.

The simplest remedy known for this terrible trying affliction, nervous headache, is a pinch of salt taken on the tongue and allowed to dissolve slowly, followed in about 10 minutes with a drink of water. Salt, in its pure state, has virtues not to be scorned, because it is an article within the humblest means.—*Hall's Journal of Health.*

Columbian Exposition Finances.

The most recent estimate of the cost of the Columbian Exposition makes it $22,226,406. Of this Chicago will pay $11,965,456. It is expected that the gate receipts will be $12,500,000, the revenues from the sale of privileges $500,000, and the proceeds of the sale of building material after the fair $1,000,000. The Philadelphia Centennial cost $5,000,000, and the Paris Exposition of 1889 $10,000,000.

SUGAR BEET CULTURE.

Phenomenally Good Weather—A Big Yield Predicted.

EDITOR AMERICAN FARMER: The month of June has furnished us with the most magnificent weather we ever realized in that month—a constant and moderately high temperature the whole of the time, with pleasant breezes and a clear sky. Storms have been moving about, but in this locality no damaging down-pours of hail or rain occurred; only four or five good, steady showers, which were well distributed over the month. In all, the rainfall did not amount to two inches for the month.

The effect of such weather upon crops in general, and on the sugar beets in particular, has been phenomenal! Never in our experience have we observed such rapid growth, and never have we beheld crops with such an appearance of health, vitality, and vigor, and of such promise for the harvest. No insects have troubled the young plants, and there is not a blemish upon the foliage, such as began to appear after the great rains of June, last year.

In the fields at Grand Island and Norfolk the cost of cultivation has been much simplified and lessened by the comparatively dry season. Last year the rains of June made it impossible to keep the crop in any kind of good cultivation. Most of the time, and at the very moment when the crop required the most assiduous attention, the ground was so wet that laborers could not be upon it, and when the weeds were cut up they grew again immediately. The labor last year went for nothing. This year the conditions have been reversed. One-half the labor has produced a twofold result. In fact, where the ground was hoed and well stirred before the weeds got a start, no weeds have appeared. That is the secret of cheap and effectual cultivation. "A stitch in time saves nine."

It is now fairly safe to conclude that the main part of the Nebraska crops are beyond any ordinary danger. Nothing but an unprecedented hailfall could seriously injure the crop.

In California the crop is nearly ready for working. By the middle of this month the factories will be opening up, and the results of the season in the West will be approximately known.

From Europe we learn that the weather has been more favorable for beet growing. "The alternation of sunshine and rain has done much good to the young plants (in Germany), which in some parts have grown so rapidly that the farmers were hardly able to keep up with the necessary field work. In certain sections the results of the cold, and the later dry heat, have not been overcome, and the stand is irregular." The propitious weather has obtained in all the beet countries of Europe excepting France and Belgium. From France we learn that the crop has been "the victim of drouth and insects," and that the prospect is far from satisfactory.

Upon the authority of George Drexau, Paris, we see that the present year's acreage in Europe, in comparison with the crop of last year, is estimated as follows:

	Acres (1892).	Acres (1891).
Germany	861,500	881,700
Austro-Hungary	868,452	794,352
France	570,580	624,910
Belgium	124,488	134,880
Holland	59,280	51,870
Russia	748,904	754,060
Other lands	56,810	56,810
Total	3,289,014	3,298,302

The estimated crop for the whole of Europe for the present year is 21,000 acres less than the total acreage of last year was.—W. MAXWELL, July 6, 1892.

A Point of Law.

History tells us of an eminent jurist who agreed to teach a young man law. According to the contract the young man was to pay him half of the tuition right away, and the other half provided he gained his first case. Some time afterward the old lawyer sued the young man for the second half of the tuition, and laid before him the following dilemma:

1. The case will be decided in my favor or in your favor.
2. If the case is decided in my favor, then by the decision of the court you will have to pay me.
3. If the case is decided in your favor, then you must pay me by virtue of our contract.
4. Therefore, whether I gain or lose the case you must pay me the money.

The young man replied:

1. I will either gain or lose the case.
2. If I gain, then by the decision of the court I will owe you nothing.
3. If I lose the cases, then, according to our contract, you will get nothing.
4. Therefore, whether I gain or lose the case, I need not pay you.

How Cholera Reaches the United States.

It is beyond human possibility to put India in good sanitary condition in any reasonable time, and to make the pilgrims observe the commonest rules of hygiene and cleanliness would require about two soldiers for each pilgrim. The most riotous imagination could scarcely exaggerate the filth of India and Egypt and of the Hindoo and Mahometan pilgrims, and it must be admitted that when people use the same water for bathing, washing soiled clothes, and drinking, they are scarcely ripe for moral suasion. So long as the pilgrimages continue Europe and this country will be endangered and will be visited by cholera, in spite of the millions of dollars spent in precautionary measures. These millions should be spent in a definite and efficient manner.—*North American Review.*

ECONOMY IN FERTILIZING.

Profitable Ways of Restoring Fertility Without Expenditures.

BY F. J. WILSON.

AS GREEN manuring is an economical way of bringing back the fertility of the soil, it is a wonder that farmers do not take advantage of it. A majority, while they recognize its value, will persist in using commercial fertilizers, which are so expensive that they make large inroads in the profits of the farm.

There is also a certain class of farmers who still do business in the same old ruts of their ancestors, and who are decidedly opposed to the improvements and rapid strides made in the advancement of agriculture. They are satisfied with their mode of farming, and look with distrust upon the methods pursued by their neighbors. This class of farmers regard the modern agriculture as theoretical farming, notwithstanding the fact that his neighbor's profits are greater, his yield more prolific, his farm in better condition, and his general circumstances superior to his own. As this class of farmers work in the old rut, their expenses are great, and they barely earn enough to keep body and soul together.

But I am digressing from my subject. Economy and industry are two great things necessary to attain success on the farm. It surely cannot be called economy when a farmer purchases commercial fertilizers to spread on ground from which as good results could have been obtained had fertilizers manufactured on the farm been used. Manufactured may seem out of place, yet it is exactly what I mean.

Nitrogen is the principale lement in almost all of our farm products. Webster defines nitrogen as being a colorless, gaseous, non-metallic element, tasteless and odorless, comprising four-fifths of the atmosphere by volume. It is chemically very inert in the free state, and as such is incapable of supporting life (hence the name azote, still used by French chemists); but it forms many important compounds, as ammonia, nitric acid, the cyanides, etc. It is a constituent of all organized living tissues, animal and vegetable.

The amount of nitrogen secured in commercial fertilizers is in very small comparison to the price paid. Since by volume four-fifths of the atmosphere is comprised of nitrogen, it would be very beneficial to the farmer if he could but find an intermediary which would make some of this nitrogen available in the soil.

Clover, peas, alfalfa, serradella, lupin, and apparently all leguminous plants in general, are able to acquire large quantities of nitrogen from the air during their period of growth. They form the intermediary, which enables the farmer to enrich his soil from the air.

A noted chemist when once asked, In what way can nitrogen be most cheaply supplied? answered, "in no way better than by growing clover; not only because of the great amount of nitrogen it gathers in its tissues, but also in the increase of nitrogen it effects in the soil, thus leaving the land richer in plant food than before it was grown."

Clover sends down its long tap roots into the subsoil, and they perforate the solid earth in search of the necessary plant food which, by the action of the rains, has been carried beyond the line of cultivation. Much of the nitrogen and phosphoric acid which would be otherwise lost as plant food are thus assimilated and become stored in the tissues of the clover. For this reason clover performs a very important office in the rotation of crops. It not only enriches and mellows the ground upon which it is grown, but the crop which can be cut may be the means of enriching other fields.

A prominent Pennsylvania farmer once told me that he believed in a four years' rotation. Clover for hay the first year, turned under for corn the next year, and then given to two successive wheat crops. He said that when clover was cut and removed from our soil it carried with it more food elements than any grass plant, and yet it leaves more near the surface for the development of the plant that succeeds it.

Whenever he sowed the clover for fertilizing purposes he did not intend to lose anything. He cut it when it reached a good hight early in the season, and then let what remained grow. The crop of clover hay more than repaid him for his trouble of sowing, and yet left more to grow and plow under. When the clover was in blossom then was the proper time for plowing under, and at that time the clover had reached the state when it contained the greatest amount of fertility.

Timothy is also plowed under as a renovating crop, but it does not possess the fertilizing material of clover. In selling and taking from our farms one ton of timothy hay we remove twice as much fertility as we do by removing one ton of wheat straw. By removing a ton of clover we remove over three times as much as we do by taking away a ton of wheat straw. A ton of straw contains 10.2 pounds of nitrogen, 1.8 pounds of phosphoric acid, and 14.8 pounds of potash, which have a market value of $2.50. A ton of timothy hay contains 20 pounds of nitrogen, 7.2 pounds of phosphoric acid, and 26 pounds of potash, with a market value of $5. The same amount of clover hay contains 39.8 pounds of nitrogen, 7.2 pounds of phosphoric acid, and 33.6 pounds of potash, having a market value of $8.60.

Under the old order of things it was deemed advisable to retain all the straw on the farm. It was considered good practice to feed heavy, work all the straw into manure, and return the manure to the land. This fallacy has long ago been exploded.

Peas also are not only admirable for renovating worn-out soils, but make excellent feed for cattle. They increase the production of milk, and are greatly relished by the cattle. In turning under peas, however, a difficulty is encountered which has somewhat prejudiced those who have tried to use it as a fertilizer. The vine should be allowed to become thoroughly dry before plowing under. Nothing is lost by the ground being allowed to dry, and all the fertilizing matter is retained. If the plant be turned under while in a green state the chances are that the land will become so soured that it will be some time before it recovers its normal state.

Stable manure is based upon the value of the materials which enter into its composition. The manure from animals fed on clover is of great value. Direct experiments have shown that of 100 pounds dry matter of the fodder the following amounts pass into the excrement (solid and liquid together): Horse, 53 pounds; milch cow, 44 pounds; ox, 52 pounds, and sheep, 48 pounds. The fresh manure contains only one-fourth of its weight of dry matter, the rest being water. Thus it will be seen the necessity of having plenty of material to absorb this liquid material, which is really the most valuable portion of the manure.

In a ton of fresh horse manure we have 10.2 pounds of nitrogen, which, at 17 cents per pound, is worth $1.73; 4.2 pounds of phosphoric acid, at 7 cents per pound, is worth 29 cents, and 10.7 pounds of potash, which, at 4 cents per pound, is worth 43 cents. This gives us a total value of $2.45 per ton for fresh horse manure. Analysis shows that a very heavy loss has occurred by fermentation and leaching, and this should be guarded against.

Can a farm—the fertility of a farm—be maintained without the use of commercial fertilizers? This is a question which is in dispute. At a meeting of the Farmers' Institute of Pennsylvania it was decided that this could be done. With the aid of the plants which secure elements from the atmosphere and from the stableyard manure it was decided that the fertility of the farm could be kept up. However, even though this is impossible, these fertilizing materials which can be manufactured on the farm will go a long ways toward reaching this result, and will limit the amount of commercial fertilizers to be purchased.

This is where the economy comes in—using the farm manure and buying only what is absolutely necessary in commercial fertilizers. All thrifty farmers are trying to better their land. It is easy to see the outgo of fertility in the form of crops sold off the place. Every pound of hay, every quart of milk, every dozen of eggs represents lost fertility. Everybody, therefore, admits the necessity of making return to the soil of the chemical elements thus removed, and the more economically this is done the greater will be the profit of the farmer.

The Chisholm Cattle Trail.

The most famous trail of all was the "Chisholm Trail." It was named after John Chisholm, an eccentric frontier stockman, who was the first to drive over it. Chisholm lived at Paris, Tex., was a bachelor, and had many thousand head of cattle on the ranges in the southern part of the State.

From 200 to 400 yards wide, beaten into the bare earth, it reached over hill and through valley for over 600 miles (including its southern extension), a chocolate band amid the green prairies, uniting the North and South. As the marching hoofs wore it down, and the winds blew, and the waters washed the earth away, it became lower than the surrounding country, and was flanked by little banks of sand, drifted there by the wind. Bleaching skulls and skeletons of weary brutes who had perished on the journey gleamed along its borders, and here and there was a low mound showing where some cowboy had literally "died with his boots on." Occasionally a dilapidated wagon frame told of a breakdown, and spotting the emerald reaches on either side were the barren circle-like "bedding grounds," each a record that a great herd had there spent a night.

The wealth of an empire passed over the trail, leaving its mark for decades to come. The traveler of to-day sees the wide trough-like course, with ridges being washed down by the rains, and with fences and farms of the settlers and the more civilized red men intercepting its track, and forgets the wild and arduous life of which it was the exponent. It was a life now outgrown, and which will never again be possible.—*Scribner.*

GRIP—INFLUENZA.

Pure Honey as a Remedy for this Serious Affliction.

EDITOR AMERICAN FARMER: The disease variously denominated here the grip, *la grippe*, etc., is known on the Continent of Europe as influenza. According to Pater Cœlestin Schachinger, an effective remedy for this disease is contained in honey. The following statements from his pen also show that adulterated honey, or sirups represented as honey, are still offered for sale in his portion of Austria:

If a teaspoonful of honey be taken daily and permitted to dissolve slowly on the tongue, one can be tolerably sure of remaining exempt from this disease. Honey dissolved in water and snuffed up through the nose hastens the cure, as I found in my own case two years ago. The cause of this lies, without doubt, in the fact that good honey contains formic acid as one of its constituents, which substance kills the influenza bacillus that develops by preference in the mucous membrane. Of course, the honey must be genuine, for only such contains formic acid. The sweets produced from sirup and resembling honey, and which have been taken from house to house by peasant peddlers, as well as offered in quantity on the markets under the name honey, are, saying nothing of numerous ingredients which they contain that are directly injurious to the health, no preventives against the disease in question.

—FRANK BENTON, Washington, D. C.

THE AMERICAN FARMER.

"*O fortunatos nimium sua si bona norint agricolas.*"—VIRG.

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☞ When sending in subscriptions specify whether for General or Southern Editions. Unless specially directed for the Southern Edition, all subscriptions will be entered for the General Edition.

BRIGHT PROSPECTS.

The results of last year's work have now been carefully summarized, and they show that we enjoyed unexampled prosperity. With the exception of cotton, the prices for all products were good, and we had an abundance of everything to sell. We are still marketing great quantities of last year's crops, and the aggregate exports for the fiscal year, ended July 1, will reach $1,027,000,000. Our imports for the same period foot up $833,000,000. This shows an increase of from 15 to 18 per cent. over the previous fiscal year. The railroad earnings for the first half of 1892 were the greatest of any year in our history, and the clearing houses did a larger business in June than was ever done in the same month before. The failures for the first half of 1892 were the smallest for five years last past, footing up 5,503 in number, and $62,000,000 in liabilities, against 6,074 and $92,000,000 in the first half of 1891.

The promise of crops is almost everywhere exceptionally fine. Early in the season the outlook was somewhat discouraging. Rust had attacked the Winter wheat in many sections, and the growth was rank. There was too much rainfall in the Spring wheat sections. Farmers had planted but little corn, and in those which were planted work was difficult, and the weed's had gotten a big start. The latter part of June, however, was much more favorable, and now the fields and the farmers are generally smiling.

In spite of the better promise of the crops, and the great receipts at the seaboard of last year's products, prices still continue firm, with a marked tendency to advance. Corn is fully one cent higher, in spite of large receipts and light exports, though this may be due to expectation that the wet weather has destroyed much of the crop, and the frost will catch that which was late planted. As to this, thanks to the Weather Charts which we have published, the readers of THE AMERICAN FARMER have as good basis for judging as the speculators. Oats are also one cent higher. Pork products have jumped upward, pork advancing $1 a barrel, lard 42½ cents per 100 pounds, and hogs 35 cents. Though cotton has declined 1-16 of a cent, it is felt that this was unwarranted.

FARM WAGES.

The recently-published pamphlet issued from the Agricultural Department, embodying its investigations into the subject of farm wages for a period of years, is very interesting reading. Those who study the tables will find much to confirm their views as to the beneficial effects upon the farmers of a judicious protection. For example, back in 1836 and 1837, when there were low duties, the prices of all manner of products were low, and farmers paid their help from 25 to 50 cents a day, or from $6 to $8 a month. The tariff of 1842 brought about better prices, and the minimum wages advanced to 35 cents, or $10 a month, but the "tariff reform" of 1846 brought about practical free trade and low prices, with a mininum of 25 cents a day for labor, and a maximum of $1 during sheep-shearing and harvesting. Monthly wages dropt in 1850 from $26 to $18. This continued until 1862, when the war, the inflation of the currency, the high prices of agricultural products, and the tariff sent wages up again to a point they have steadily maintained, except during 1865 and 1866, when there was a general readjustment of all values. The following table gives the course of wages from 1854 to 1865:

1854, without board	Day	$1 00
1855, with board	Month	14 67
without board	Month	22 00
with board	Day	1 00
without board	Day	1 50
1856, with board	Month	14 67
without board	Month	22 00
without board	Day	1 00
1857, with board	Month	14 67
without board	Month	22 00
without board	Day	1 00
1858, with board	Month	15 96
without board	Day	1 00
1859, with board	Month	16 21
without board	Day	1 00
1860, with board	Month	15 10
without board	Month	21 75
with board	Day	1 00
without board	Day	0 90
	Week	4 25
1861, with board	Month	15 00
without board	Month	20 00
1862, with board	Month	19 10
without board	Month	26 00
without board	Day	2 00
1863, with board	Month	19 42
without board	Day	2 38
1864, with board	Month	20 33
without board	Month	29 00
with board	Day	1 25
without board	Day	2 00
1865, with board	Month	23 10
without board	Month	32 00
with board	Day	1 10
without board	Day	1 75

A farmer in Butler County, O., gives the following scale of wages in that section for 56 years:

Year.	Monthly Wages.		Day Wages.		Female Help Per Week.	
1836	$6 to $8		$0 25 to $0 50		$0 50 to $0 75	
1837	6	8	25	50	50	75
1838	8	10	40	50	50	75
1839	12	20	50	75	75	1 00
1840	10	12	25	50	50	75
1841	9	10	35	50	..	75
1842	8	9	35	40	..	75
1843	8	9	..	50	75	1 00
1844	10	11	..	50	75	1 00
1845	10	12	50	62	75	1 00
1846	10	12	50	62	75	1 00
1847	10	12	50	75	1 00	1 25
1848	10	12	50	75	1 00	1 25
1849	10	13	50	62	1 00	1 25
1850	10	13	50	62	1 00	1 25
1851	11	13	50	62	1 00	1 25
1852	11	13	50	62	1 25	1 50
1853	11	13	50	75	1 25	1 50
1854	12	13	50	75	1 25	1 50
1855	12	14	50	75	1 25	1 50
1856	13	15	50	75	1 50	2 00
1857	14	16	62	75	1 50	2 00
1858	14	16	62	75	1 50	2 00
1859	13	15	50	75	1 25	1 50
1860	13	15	..	75	1 25	1 50
1861	13	15	..	75	1 25	1 50
1862	12	13	..	75	1 25	1 50
1863	14	15	75	1 00	1 75	2 00
1864	15	20	1 00	1 25	1 75	2 00
1865	18	25	1 25	1 50	1 75	2 00
1866	18	25	1 25	1 50	1 75	2 50
1867	15	20	1 00	1 25	1 75	2 50
1868	15	20	1 00	1 25	1 75	2 50
1869	15	18	1 00	1 25	1 75	2 50
1870	15	18	1 00	1 25	1 75	2 50
1871	15	18	1 00	1 25	1 75	2 50
1872	15	18	1 00	1 25	1 50	2 00
1873	15	18	1 00	1 25	1 50	2 00
1874	15	18	1 00	1 25	1 50	2 00
1875	15	17	1 00	1 25	1 50	2 00
1876	15	17	1 00	1 25	1 50	2 00
1877	15	18	1 00	1 25	2 00	2 25
1878	16	18	1 00	1 25	2 00	2 25
1879	16	18	1 00	1 25	2 00	2 25
1880	16	18	1 00	1 25	2 00	2 25
1881	16	18	1 00	1 25	2 00	2 25
1882	16	18	1 00	1 25	2 00	2 25
1883	15	17	1 00	1 25	....	....
1884	15	17	1 00	1 25	2 00	2 25
1885	15	17	1 00	1 25	2 00	2 25
1886	15	17	75	1 00	2 00	2 25
1887	15	17	75	1 00	....	....
1888	15	18	75	1 00	....	....
1889	16	18	1 00	1 25	2 00	2 50
1890	16	18	1 00	1 25	2 00	2 50
1891	15	17	1 00	1 25	2 00	2 50

It is generally conceded that wages will rather rise than fall, for the reason that the general introduction of labor-saving machinery demands higher intelligence in those who manage these machines than was formerly required in those who handled only hoes, axes, sickles, and flails. The farmer can better afford to pay these higher wages than he could the much lower ones of a former generation, for the reason that the product is immensely greater. A man with a cultivator or a thrashing machine at $2 a day is much cheaper than his grandfather at 25 cents a day, who swung a hoe or a flail.

THE Directors of the Columbian Exposition have approved of Chief Buchanan's recommendation that they take charge of the entire work of feeding of live stock on exhibition. This will insure that exhibitors will not be at the mercy of a ring of dealers in forage, but that they will get all they want of the best quality and at the lowest market rates.

THE AGRICULTURAL DEPARTMENT'S WOOL EXHIBIT AT THE WORLD'S FAIR.

The Assistant Secretary of Agriculture, Prof. Willits, who has charge of the exhibit which the Department proposes to make at the World's Columbian Exposition, is now taking measures for a thoroughly classified exhibit of the wools of the United States. A very competent committee has been chosen to look after the work, consisting of E. A. Greene, of Philadelphia, and Hon. J. T. Rich, of Elba, Mich. The exhibit is expected to include 100 samples of foreign wools chosen from a collection of foreign wool now being gathered for the customs service by the same committee. The domestic wool represents all breeds and classes raised in this country. The space available will not permit the showing of many whole fleeces, and of these a restriction will be in favor of a few pedigreed sheep. The exhibit will be principally put up in pound bottles, and will be ingeniously arranged so as to show on one side the staple and on the other the skin side of the clip. This is deemed a natural way of seeing wool, and will be readily appreciated. Some attempt will be made at attractive display by the introduction of decorations and pictures of sheep, sheep homes, and ranch life, perhaps. It is said to be the desire of Mr. Willits to secure stuffed and mounted specimens of rams of the Merino and perhaps other breeds and varieties, which would be valuable object lessons. Flockmasters will greatly afford Mr. Willits every possible facility for carrying out any wish he may suggest. This part of the display could easily be made a historical study, and illustrate the 400 years of sheep-raising connected with and a part of Columbian history. The sheep and wool men of the United States and of the Columbian countries feel grateful to the United States Department of Agriculture for the interest shown in this display of sheep and sheep products at the World's Fair.

ACCORDING to German investigations, tramps are a remarkably healthful lot. Out of the many thousand wanderers who were entertained last year at the tramp stations established by the Government, but two per cent. needed medical attendance, 20 per cent. obtained work, and 60 per cent. preferred to wander.

AT LEAST we will not have the competition of India this year in the wheat market. The reported shortage there is estimated at 30 per cent., which means that the country will have to import instead of exporting large quantities of grain.

POSTAL SAVINGS BANKS.

There being no money in the thing for any politician, nor votes to be made, the Postal Savings Banks Bill makes little progress in Congress; yet this legislation is most urgently needed by the country. Of its great and general good effect there can be no doubt. It would benefit the country inconceivably, and no one has yet offered a sound objection to it. Despite all this the bill sleeps quietly in the Committee rooms, with scarcely an interruption in its slumber by an inquiry as to its condition from one of the 88 Senators or 350 Representatives. It will continue to enjoy this undisturbed repose unless there is a loud and peremptory demand from the people that it be taken up and passed.

If every postoffice could be made a savings depository—and there is no reason why it cannot—it would double or treble the active working capital of the country. It would put every idle dollar at once into circulation, and make it available for business purposes. When we think how rapidly small hoardings by great numbers of people swell into vast sums, it will be at once seen how important this is. If every man, woman, and child in the United States should lay by so much as $10 it would take up nearly the whole volume of currency in the country.

Much of the great prosperity of France rests upon the popular savings which are carefully fostered by the Government. This issues small bonds, which are taken up in great numbers by the poorest people, who save every possible centime to invest in them. The result is an enormous aggregation of capital, which is available for any great enterprise. The certainty of safe and profitable investment stimulates savings, and is one of the powerful influences which have made France, with her small and not especially fertile territory, one of the richest and happiest countries in the whole world.

The Postal Savings Bill now before Congress proposes the best scheme for this purpose yet devised. Postmasters are to sell stamps of the denomination of five cents and upward, which the buyer will paste on cards to be furnished him by the Postmaster, and when these are full he is to return them to the office and have the amount placed to his credit, and receive interest thereon. This plan has been tried with great success in England, and by private firms in this country. There is no doubt of its entire adaptability to the postoffices and people of this country, and that its adoption would be followed by good results everywhere.

The greatest obstacles at present to general savings by our people are the distance to banks, the cumbrous, inconvenient systems adopted by some of the banks, and the occasional failures, which shake the confidence of the people in these institutions. All these objections will be obviated by the use of postoffices as depositories for savings.

The reports to the Postmaster-General show the following average distances to savings banks in various sections of the country:

New England States—Average distance to the nearest savings bank, 10 miles.
Middle States—Average distance to the nearest savings bank, 25 miles.
Southern States—Average distance to the nearest savings bank, 25 miles.
Western States—Average distance to the nearest savings bank, 28 miles.
Pacific Slope States—Average distance to the nearest savings bank, 52 miles.

It is at once evident that all the savings banks are entirely too remote to be of much value in inculcating habits of saving and depositing in our people. Even in New England, by far the best supplied section, and where the aggregate savings run far up into hundreds of millions of dollars, the average distance is too far to admit of the savings banks being a real convenience to the people, and in the rest of the country they are practically out of the reach of the great bulk of the community.

Excellent missionary work can be done among wagon-makers to induce a general widening of tires, in the interest of good roads. The widening of tires means a lightening of the draft on any road, particularly bad ones. The narrower a tire the deeper it sinks in the mud, and the more force required to pull it over the elevation it forms in front of itself. The French wagon-makers help keep their splendid roads in good order by making very wide tires, and making the tread of the front wheels a little narrower than the hind ones. In this way the front and hind wheels roll different portions of the road, and greatly help to keep it smooth.

May not bacteriology give us a relief from the rats, which, no longer plagued by their natural enemies, snakes, weasels, minks, hawks, and owls, have developt until they cost the country more than any other infliction, except bad roads? The Government of Greece, moved by the distress of the people whose crops were being devoured by mice, appealed to a German bacteriologist, who inoculated the little pests with a deadly species of microbes, which speedily exterminated them. The same is possible with rats.

The next issue of The American Farmer will contain a very valuable article on Stable Manue, by Mr. Thos. F. Hunt, Professor of Agriculture in the Ohio State University.

THE RURAL FREE MAIL DELIVERY.

Through much labor and tribulation Congress was at last induced to make the appropriation of $200,000 to continue and extend the Rural Free Mail-Delivery experiment, and First Assistant Postmaster-General Whitfield has issued the following order to each of the 46 experimental offices:

Provision having been made for the maintenance of the existing experimental free delivery offices to June 30, 1893, you will therefore continue the service at your office under the conditions and allowance heretofore authorized by the Department.

This will be good news to farmers generally, and particularly to the patrons of two Pennsylvania offices, who were so pleased with the free mail delivery that they had decided to continue it at their own expense if the Government would not.

ROOT PRUNING.

The article in this issue of The American Farmer by Mr. Thos. L. Brunk, Professor of Botany and Horticulture in the Maryland College of Agriculture, is one of extraordinary interest, and gives ideas and methods which are revolutionary in their nature. It will be read with profound attention by all growers and handlers of trees, since it means a great cheapening in handling and planting trees, as well as improvement in their growth and development. Prof. Brunk is master of his subject; he stands in the front rank of the scientific botanists and horticulturists of the country, and he has demonstrated the truth of his theories by actual experiment. The illustrations which appear in the article are made directly from actual photographs of the trees experimented upon, and show the truth in regard to them by the incontestable evidence of the camera.

THE NATIONAL LECTURER.

The following are the appointments of Lecturer Whitehead for the next few weeks:

July 30—Farmers's Picnic, Harvey's Lake, Pa.
Aug. 1—Lathrop, Pa.
Aug. 3—"Grange Day," Cassadaga Lake, N. Y.
Aug. 5, 6, 8, 9, and 10—Meetings in Susquehanna, Wayne, and Pike Counties, Pa.
Aug. 12—Meeting near Seip's Station, Northampton Co., Pa.
Aug. 13—Meeting in Perry Co., Pa.
Aug. 15—Lake Keuka, N. Y.
Aug. 18—Summer Meeting, New Hampshire State Board of Agriculture, Hampton Beach, N. H.
Aug. 24—Annual Meeting State Agricultural Society of Alabama, and State Grange, Birmingham, Ala. From that until Sept. 2, at various meetings in Alabama under the auspices of these organizations.

The American Farmer *is only $1 a year.*

It is only a question of time, and very short time at that, when the strip of country 50 miles wide and stretching along the Atlantic coast from the mouth of the Chesapeake to Florida will be entirely devoted to truck farming. The benefits to the South from this are immense, outside of the great amount it brings in. It teaches many new and profitable ideas about farming, the management of land, fertilizers, etc., which cannot help being of the greatest value to all in that section, whether they go into trucking or not.

Elsewhere we make an offer of the *Ledger* of Tacoma, Wash., and The American Farmer for one year for $1.50. The *Ledger* is printing a series of stories of early settlers in the new State of Washington, which have proved immensely attractive. Everyone who wants to know something of that wonderful new country should take the *Ledger*.

We shall never have good roads in this country until the road taxes are paid in money. The people of each Township will then see that the money is properly expended in real improvements of the highways.

COMPLIMENTS.

"Numerous Evidences of Improvement."

Editor American Farmer: It is a gratification to again see The American Farmer, and to note the numerous evidences of improvement, and of its present substantial support. An agricultural journal of such age, and such unsullied reputation, ought to furnish a safe and satisfactory foundation upon which liberal and progressive management should be able to build up a wide constituency, and exert great power for usefulness.—Henry E. Alvord, President Maryland Agricultural College.

"More than Pleased."

I have received a copy of your valuable paper; also, your grand and beautiful map, all in good condition. I will say that I am more than pleased.—C. C. Gentry, Gentry's Mill, Ky.

A SPECIAL OFFER.

The American Farmer for the Rest of 1892 for 25 Cents.

In order to extend the circulation of The American Farmer and give a great number of people a chance to become acquainted with its many good points, we will make a special offer: *We will send the paper from now until Dec. 15, 1892, for 25 cents.* This is a splendid opportunity to get a vast amount of the very best reading matter for a very small sum. Do not fail to embrace it.

Address

THE AMERICAN FARMER,
1729 New York Ave., Washington, D. C.

Everybody's Garden.

All along the wayside is everybody's garden!
There the wild rose blossoms through the Summer days;
Bounded by field fences and ever stretching onward,
It is God's own garden. For it give Him praise.
'Tis gay with goldenrod,
There blooming grasses nod,
And sunflowers small and yellow turn ever in to the sun.
Quaint darky-heads are there,
And daisies wild and fair.
In everybody's garden each flower's the loveliest one!

All along the wayside is everybody's garden!
Come out and gather posies; the very air is sweet.
Come out with hearts of gladness, ye big and little children,
Into our Father's garden, made for our strolling feet.
The flitting butterfly,
The fragrant winds that sigh,
The tiny clouds that hover above us in the blue,
The bird's song high and clear,
Make heaven draw more near,
In everybody's garden the world once more is new.

—*William Zachary Gladwin, in Christian Union.*

By the Editor's Fireside.

I WONDER how many readers of THE AMERICAN FARMER know how to rest. No doubt you will all at once exclaim that it is easy enough if you can only get the time, and yet I think there are very few people who know the real secret of renewing their strength by a complete cessation of mental and physical labor. It, however, is a necessity in order to obtain the best results to sometimes give brain and hands absolute quiet.

Often the greatest benefit comes from passing from one kind of work to another which is entirely different. The great trouble is that we, too many of us, permit ourselves to do more than one thing at a time. While we are working in one direction our brains are busy in another, going over the necessary steps for the accomplishing of something else, thus using all of the mental force that will be required in its accomplishment before we are ready to begin. The busy housekeeper who, while washing her dishes, thinks over the number of rooms she must sweep and dust before noon has really exhausted herself by mental action before she begins the physical.

Prentice Mulford says in one of his essays that "the principal means for holding and increasing both physical and mental strength lies in the training of the mind and body to do but one thing at a time; in other words, to put all the thought necessary for the performance of any act in that act, and to put all other thought out of the mind save what belongs to that act."

Here lies the true philosophy of labor; it is to have mind and muscle co-operate. If you are sweeping, give direction to your efforts with the mind; then you will do the work with the least outlay of strength, because you have brought thought to bear upon the best means for doing the work well. If while you wield the broom you are thinking of other things, you are really wasting strength and force. In other words, you are sending your energies in two directions, or at least making a strong effort to do so.

If we could learn to concentrate our mind and effort upon one thing at a time, we should find ourselves with much greater power to do and with much less need of rest. It is this dissipation of brain power in different directions that exhausts and sometimes breaks down the physical force entirely.

If you do not believe me, try this plan for a single day. Do not let yourselves do anything but once; that is, put your mind upon what you are doing, and do not let it wander to what must be done by and by. Believe me, you will accomplish far more; you will remember the little things that will save after-exertion, and you will get the whole day's work done and feel at night far fresher than by the old way. When the time comes for you to rest do that in the same way. Put your mind upon pleasant things, divesting yourselves entirely of any consciousness of what must be done to-morrow or next day or next week. That is, "let go." And this is really the only way in which there can be perfect renewal of strength.

One word more in regard to this power of concentration upon a single act. You will all readily acknowledge that your child must bend his whole thought and energy upon the lesson to be learned. You will tell him he can never be a scholar if while he studies he lets his mind run off to swimming, to flying his kite, or to any other of the pleasures of boyhood. Success can only come from keeping his mind steadily upon his work, remembering that the same rule holds good for every individual, no matter what he or she is doing. It is just as incumbent upon you in your household duties as upon your boy in his studies. Think of the one thing at a time. Do not in your mind repeat household operations over and over before you put your hands to them. Rest assured that if you follow this law, for it is a law of our being, life will be much easier, and your power of accomplishment much greater.

The majority of us take thousands of steps in the course of a year to no purpose. We are constantly making aimless movements; we rock; we tap with our feet; we drum with our fingers; and then our thoughts are in advance of our bodies. It is an American characteristic to go with head thrust forward, and it marks the nervous hurry that has been cultivated until it has reached this point. This is one reason why fretfulness is considered a characteristic of American women. It is because they do not know how to work in order to accomplish the most with the least exertion, or how to rest in order to bring the greatest renewal of life and energy.

* * *

I WONDER how many have ever thought what a funny appearance an audience in hot weather presents with the waving of the fans to and fro, either fast or slow, as is the temperament of the individual. Indeed, this is one of the simple things that tells the story of character, or rather of habits of thought or action.

One moves the fan gently back and forth as if weaving the thread of fate. There is no haste, and the movement of the atmosphere is more like the gentle zephyr that bends the grass or stirs the leaves as if it were but a breath. Another works the whole arm as though life depended upon the amount of motion that could be produced within a given time. One may rest assured that the first has a calm, even temperament that is rarely disturbed, and that takes life as it comes, without worry, and with an honest, earnest belief that everything is all right, or, if not, that it is not worth making a burden of it by worrying. The other hurries everything; life is full of action, full of anxiety; everything must go with a rush, and if it does not do that nothing satisfies.

The history of fans is very interesting. A writer in the July number of *Peterson's Magazine* tells us many interesting facts regarding them in the far away past. The most ancient fans are 35 centuries old, and were used by the Egyptians. Some of them are very handsome, although made in the simplest form. The Arabians used to write inscriptions and religious sentences on these articles, ceasing when the feather fans became the style.

The first Greek fans were made of lotus and plaintain leaves. These leaves were dried with a long stem left upon them to form the handle. It is said that a fan which dates back to the sixth century is now preserved in a castle near Milan, Italy. It formerly belonged to a Queen. "It is composed of two square leaves, one of which folds over the other, each being richly gilded and ornamented with pearls. The handle is of solid gold, inlaid with gems." The curious idea connected with this fan is that it has some peculiar property for bringing about a happy marriage, and many of the girls from the neighboring country go on pilgrimages to the castle where it is kept in order to touch it for this purpose.

Large amounts of money in the past have been spent upon these articles after they became so popular, and continue to be at the present time. Some persons make collections of all of the most beautiful and most novel in the way of shape and of decoration that can be found. Perhaps none, however, can equal the one which Madame de Pompadour is said to have owned. It was made of lace, which cost $30,000. On each stick were medallions that contained the finest finished miniatures, and it took nine years to make the article. Among those of the presents who are making collections of fans may be mentioned Christine Nilsson and Mrs. Langtry. The former has a large assortment, most of them given to her by celebrated people, and very beautiful. Her collection is said to be worth at least $50,000. Mrs. Langtry's represents almost every era of time, and those of all countries. What she has from France are said to be most beautiful and delicate.

The passion for beautiful fans and of a large variety is the same as that for beautiful jewels or china, and perhaps they tell even more of the past and of the present than those articles. There is certainly a great deal of poetry, as well as of prose, connected with fans in the social world.

THE ART OF SEWING.

The Editor Chats About It, and Mending.

I.

The old-fashioned sewing, in which the stitches were taken so finely as to look as if printed, is fast becoming a lost art. It has been driven away by the ever-ready sewing machine, now becoming a necessity all over the civilized world, and now, where our mothers sewed inches, we can turn off yards, making them a marvel of neatness, too.

Another great change has been brought about by the advent and use of this bit of machinery. In years gone, men and needles were comparative strangers to each other; now the sterner sex often finds employment in the manufacture of wearing apparel of both men and women. The funniest sight is the Chinese shirt factory in San Francisco. Away up under the roof you will find from 30 to 40 of them, with as many machines, in a room hardly high enough to permit you to stand upright, and of just sufficient size to allow them to work. There they sit, seemingly without air, with their queer, impassive faces bent over their work, stitching away from early morning to dewy eve, making the garments with marvelous celerity and an exactness of measurement that many white seamstresses would do well to imitate.

Though it is true that sewing by hand is almost a lost art so far as making new garments is concerned, yet there is one way in which the needle must be used as deftly as of yore; this is in repairing half-worn garments. The mending basket is a family necessity. Its furnishing must include strong thread, the finest of cottons, different-colored sewing silks, and the mending yarns necessary for stockings. There must also be a button bag, with the different sizes of buttons used upon undergarments.

Where white clothing is passed through a wringer when washed, the housekeeper's soul will be wrung with despair when looking them over after they come from the laundry. This looking over, by the way, is something which a good housekeeper never omits. Then is the time when absent buttons should be replaced, the rents sewed up, and everything put in order, so that the would-be wearer will not find disorder and inconvenience where a little foresight and a few ready stitches would have produced an opposite condition.

Right here it is well to say that the sewing on of buttons is really an art. They should always be sewed loosely, and this can be done by placing a pin or a darning needle, according to the size of the button, between the cloth and the button while sewing in order to make the stitches loose; when these are withdrawn, the thread should be wound around the stitches, thus making a shank for the use of the button hole. Another thing in the sewing on of buttons upon places where a great deal of strength is required, is the folding of a small piece of cloth twice or four times and placing it under the point at which the button is to be sewed. It will be a little hard to sew through, but will prevent the tearing out of the cloth of the waist.

A very convenient way of fixing these undergarments, which does not involve the sewing on of buttons or replacing them so often, is the use of these thick buttons with two large holes in them which are threaded on the narrow Scotch tape. This tape is left about half an inch long, sewed together and then fastened to the waist by a horizontal row of tape stitched on by a machine. As will be readily understood, these buttons hang loosely, but never pull out the cloth.

The mother is often perplexed to know what to do with the boys' shirt waists which are yet good, while the edges of the cuffs and collars are so frayed out as to give them a ragged appearance. The best way is to have the starch thoroughly washed out, cut off the edges, pull them apart, then turn them in carefully and stitch together again. Of course the thoughtful mother will readily understand that where new cuffs are needed, the bottom of the waists may be cut off and replaced with other cloth, while this piece may by used for that purpose. Shoulder seams in the shirt waists should always be strengthened either by a bias piece of cambric sewed on over the seam, or by a tape hemmed on to the under side.

Skirts which have become frayed out around the bottom may be mended in the same way as that suggested for the collars and cuffs of the boys' waists. This and a new band for a worn out old one will put them in order for a great additional wear.

FACTS ABOUT WOMEN

Of Interest to the Farmer's Household.

Mrs. Mary Mapes Dodge, the editor of the *St. Nicholas*, desiring to save herself the manual labor of writing with the pen, bought a phonograph, and now, when an idea strikes her, she simply talks into it, and then when her stenographer comes it is taken from the phonograph, and Mrs. Dodge elaborates it by dictation. She believes in doing her work in the easiest manner possible, and for thus doing she is an exceedingly wise woman.

It is a well-known fact that when Miss Murfree first began writing she took a masculine *nom de plume*, that of Craddock, because she beleived her work more likely to be accepted than under a woman's name. She also practiced writing in a large, square hand, and both of these circumstances completely deceived her publishers, who saw the brilliancy of her work, but never dreamed that it came from a woman's brain.

Miss Alice Flavin is a young woman who has made for herself a great reputation as a designer of women's costumes. Indeed, so successful has she been that the well-known Worth made her an offer to join his establishment, which she refused. She is now going, or has gone, to Paris to pursue a course of art studies which shall help her in her profession.

Mrs. French Sheldon, the wonderful African explorer, who has traveled through countries where men would hesitate to go, is still a young woman, a practicing physician, and an accomplished writer and translator. She says that she went to Africa, not for scientific investigation, but to study the social condition of the people, especially of the women and children. She states many very interesting things in regard to them, and her forthcoming book will be received with a warm welcome.

It is an interesting fact to know that of the 11,000,000 of women in Italy nearly 2,000,000 are employed in different industries, such as cotton, linen, and jute factories, while in the silk trade there are 100,000 employed, and only 17,700 men. There are also 3,000,000 who work in the fields and at fruit raising.

For the Home Table.

POTATO CHOWDER.

Peel and slice a dozen potatoes, and put them into cold water. Take a quart of water, and, when boiling hot, add the potatoes; put into it a heaping tablespoonful of butter, and add a scant teaspoonful of salt. Cook slowly three-quarters of an hour. Add a pint of milk, and let it just come to a boil; then add some salt if necessary, and a little white pepper.

NUT CAKE.

One cupful of butter; two of sugar; one scant cupful of milk; six eggs; one and a half teaspoonfuls of baking powder; three and a half cupfuls of flour; one cupful of meats; one-half teaspoonful of lemon, and one-half of vanilla. Beat the whites and yolks separately, saving one of the whites for frosting. Flavor the frosting with lemon. This makes two loaves.

COCOANUT CUSTARD.

Heat one quart of milk in a double boiler. Beat the yolks of five eggs and the whites of two, light, and five tablespoonfuls of sugar. Over these pour the scalding milk, stirring as you do so. Set over the fire again, and stir until the custard begins to thicken. Have ready one-half of a grated cocoanut, and pour the thickening custard on it, stirring them together. When cold, flavor with rose water or bitter almond; put into a glass dish, and lay over it the other half of the grated cocoanut. On this spread a merangue of the beaten whites of three eggs mixed with two tablespoonfuls of powdered sugar. Eat with sponge cake.

CANNED PEA SOUP.

Open a can of peas, drain, and lay them in cold salt water for half an hour. Boil them soft in three pints of hot salted water, with a slice of onion and a stalk of celery. A sprig of mint improves the flavor. When soft, rub them with the water in which they were cooked through a colander; put over the fire and bring to a boil. Add two heaping tablespoonfuls of butter rolled in three heaping tablespoonfuls of flour; one-half cupful of hot milk; a small teaspoonful of sugar; salt and pepper to taste. Simmer and stir for five minutes, and turn into a tureen in which is some fried bread dice.

SPICED CURRANTS.

Stem the fruit and wash it; to every four pounds of currants allow two pounds of brown sugar, one pint of vinegar, one tablespoonful of allspice, one tablespoonful of cloves, one tablespoonful of nutmeg. Make a sirup of the sugar, vinegar, and spices, and when the sugar is dissolved boil the fruit in the sirup one-half hour. Seal up in glass cans.

LEMON ICE.

Two tablespoonfuls of gelatine dissolved in water enough to cover it; one cupful of boiling water stirred into the gelatine when it is softened. Then add three cupfuls of cold water; three cupfuls of sugar, and juice of three lemons. Freeze.

WORK FOR BUSY FINGERS.

Pretty Things for Gifts and Home Decoration.

NEEDLEBOOK.

Cut four pieces of perforated gold cardboard four inches long and two inches wide; then cut two more, measuring two inches square. Work a design in colored silks on three of the largest pieces, and on the two squares. Line each piece with yellow silk, and sew them together in box shape, using the larger pieces for sides, top, and bottom, and the squares for the ends of the box. Fasten the lid to one end of the box. Cut three leaves of white flannel, button hole the edges with yellow silk, and sew them to the inside of the lid. Sew a small silk-covered button to the end of the box, and a loop to the end of the lid to fasten it with. The box will hold the thimble or pins if you wish.

HANDKERCHIEF CASE.

Cut two strips of two shades of pink ribbon three inches in width and three-quarters of a yard long. Also a piece of pale-blue China silk of the same length of the ribbon and six inches wide. Overhand the ribbon together, and point one end; to this point fasten a roset of baby ribbon of the two shades of pink. Lay one thickness of sheet wadding over the China silk, dust well with sachet powder, and fasten securely. Cover the wadding with the strips of ribbon and fasten. On the square end of the China silk side measure off three squares, and with baby ribbon of the same shades of the roset cross from corner to corner, finishing with tiny bows. Slip the handkerchiefs under these ribbons, which will hold them in place. Fold up the case so that the pointed end with the roset will be on top.

MAGAZINE COVER.

Cut the cover from white linen of the required size. Bind the edges with pale-green ribbon. Paint the word "Magazine" diagonally across the cover on one side. Also paint or embroider scattered clover blossoms. Tack a bow of pale-green ribbon to the lower corners; and a strip of ribbon is tacked to the top and bottom on the inside, midway between each end and the fold, to hold the magazine in place.

TOBACCO POUCH.

Cut a circular piece of tobacco-brown silk 14 inches in diameter; line with oil silk, and either pink the edges or bind with narrow golden-brown satin ribbon. Embroider in golden-brown silks a wreath of tobacco leaves for five inches of the depth all round. At the bottom of the inside sew in a cardboard circle two and a half inches in diameter covered with brown silk; one and a half inches from the top, punch holes one inch apart, work with eyelet stitch and draw through them golden-brown silk cords with tassels on the end.

BUREAU-DRAWER SACHET.

Cut two pieces of pink cheese cloth the size of the drawer. Lay between them a thickness of cotton batting, and sprinkle with sachet powder. Join the edges neatly, and then tack at intervals pink baby ribbon tied in tiny bows.

SHEEP AND WOOL.

Shearings.

The price of a fat wether in New South Wales in 1805 was £5.

The foot and mouth disease in Great Britain is believed to be under control.

Salt the sheep regularly and liberally, but see to it that ample supplies of pure, good water are at hand.

The man that said he would "walk a mile to kick a sheep" placed himself on an unenviable record.

On limestone soil blue grass makes a good sheep pasture; but blue grass and white clover makes a better one.

Mr. S. C. Williams, of California, has just received a consignment of 30 Rambouillet sheep to be used on his ranch.

One of the facts that cannot be too often repeated is the importance of a clean skin for health and wool-growing.

It is an old and good rule to keep a few fresh furrows plowed in the pasture where sheep may thrust their noses to avoid the gad fly.

Keep an eye on the comfort of the sheep. If not comfortable they are neither producing wool or mutton, nor doing any good.

The man that claims sheep will destroy his pastures has been starving his sheep until they eat the grass clear into the ground.

An agriculturist that thinks the feet of cows kills the soil is a long way from the true principle of good farming and the highway to prosperity.

A grand sheep meeting in connection with the sheep show at the World's Columbian Exposition is being discussed through the Agricultural press.

A pasture known to be infected could be cleaned by grain cropping in a year or two quite as effectually as by keeping the sheep off of it for a few years.

Speep-raising in some of its more promising branches is attracting much attention of late. Washington City market is the best in the country.

A New York breeder reports twin rams 30 days old, combined weight 73 pounds; ewe lamb 70 days old, weight 74 pounds; ram lambs 90 days old, weight 89 pounds.

It is claimed by some that permanent pastures do not produce as much feed as new seedings. It is quite possible that plowing up the pastures for other crops keeps the soil more healthy for sheep.

A St. Mary's County (Md.) farmer says his 100 sheep cost $10 for feed last Winter, a hard Winter. His fleeces averaged $1.50; has sold about $500 worth of lambs, besides supplying his own table.

The Cashmere goat comes from the mountains of Thibet, and takes its name from the valley of Cashmere. They are quite different in size and covering from the Angora goat. There are no Cashmere goats in this country.

Red clover is a valuable pasture; especially after the first crop is taken off, or if kept tolerably short by not too excessive cropping. The red clover plant will not bear too close grazing; if the crown is eaten off it dies.

The mutton part of the sheep industry is doing for the United States what it did for the countries of the Old World, for Canada, and is doing for New Zealand and other countries of Australasia. It is leveling the whole lump.

"Cashmere sheep" and "Goat Sheep," known in Connecticut, New Jersey, and Virginia, are nothing more than Angora goats. Just why they should be propagated, sold, and officially recognized by Fair Associations as sheep is hard to explain.

Fine, soft grasses produce fine, soft wool. Sheep removed from fine, tame pastures to the coarse, prairie grasses of the West, have to change the character of their fleeces. A few months has been known to change the value of their wool quite considerably.

Small animals are adapted to hilly, mountainous lands, and sparce short grasses. They can travel all day to fill themselves without hardship and inconvenience. Large animals would not endure it; they would grow poor and degenerate into scrubs.

The American Cotswold Record Association have decided to give $600 in cash prizes in the breeding and fat-stock show classes of World's Columbian Exposition. Ten dollars will be added to every first, second, third, and fourth prize offered by the Exposition.

A really good sheep deserves a book pedigree, but a bad sheep is not helped by a pedigree. The more the worse in such a case. A good sheep is a good sheep because it makes money for its owner. The sheep register syndicates cannot say a word against such a sheep.

Mutton market in Chicago, June 1, was higher than for many years. Shorn sheep sold for $6.25, $6.40, and one lot of Shropshires for $6.90. The popular prices were $5.25 to $5.75. Supplies mostly from Texas. Spring lambs were in liberal supply, and were quoted at $5 to $8.25 per 100 pounds. Private sales $6.50 to $7.75.

A salting experiment: Mix, say, one quart of salt with half a pound of sulphur for one box and place under cover where sheep can use at will; salt ditto and one-quarter pound powdered copperas; salt ditto and one pound rosin; salt ditto and equal quantity wood ashes; salt ditto and one-quarter pound tobacco or cheap snuff; salt ditto and half a pint pine tar and see the preferences and caprices of the sheep. All these are healthy compounds.

The man that has not docked and castrated his lambs has made a mistake. If it had been done when they were a few days or even hours old it would not have hurt them, but now the weather is hot and the flies are likely to introduce maggot and some may die. Lambs to be sold when three to eight weeks old should not be disturbed, but if to be sold at three to four months old they should be operated on—the earlier the better. They will grow larger and show to better advantage and sell for more money. If it is not done it must be; so prepare to do it at once. With red hot iron cauterize the arteries to stop the flow of blood as soon as the tail is cut off. Use salty grease and turpentine, equal parts, freely to heal the wounds and keep away the flies. Watch them, too.

Some Sheep Notes for Virginia.

With the cheapness of land, the healthy conditions, the salubriousness of the climate, the abundance of feed, the long season that grass may be depended on, the market facilities either by land or water to all points, both in this country and to foreign markets, places Virginia in especial preference.

To real estate men the quickest and surest way to boom farming lands in Maryland and Virginia would be to locate a couple of hundred lamb-plants and sheep-feeding farms in good hands throughout the State contiguous to shipping points. Hotel proprietors and restaurant-keepers, capitalists, and owners of lands are already looking to the subject of better home supplies of mutton, especially in the form of lamb.

The breeding of rams of mutton types offer valuable inducements to somebody with business capacity for such lines throughout all the regions of Virginia, Maryland, and Delaware.

It is not in keeping with the intelligence of this age, nor creditable to the interest in modern agriculture, to abandon farming lands to the "old pine field" system that has descended from father to son for more than 200 years. It is time for a reform in these things. The modern systems of farming should be applied to these depleted lands and barren wastes. There is not a doubt but they would respond readily and at trifling expense to methods in which sheep should necessarily and economically be used. The inheritance of depleted farms, large landed estates, false ideas of the dignity of labor, the practices of farming and unprofitable conditions that have come as a relic of the past have disheartened and sent to the West thousands of young men. This is to be lamented.

If the owners of these cheap lands in the "Old Dominion" had as much faith in the possibilities of the soil and situation as is shown in Western desert lands, there would be inaugurated splendid agricultural enterprises that can readily compete with the most progressive regions in the United States. True, the situation is peculiar; but is capable of marvelous and easy development under wise and pushing enterprise. The kind of labor is an encumbrance; the tendency of all classes to the city for an easy and attractive though precarious existence is demoralizing to agricultural enterprises. As long as the city offers promises of profits superior to the farm, this will continue. A change need not be expected while legitimate farming does not recompense the tillers of the soil.

Corn for Sheep.

Sheep that take exercise in open fields, and get some grass all Winter, require more grain than when they are housed closely; but it makes them hardy. Corn is too heating for sheep closely housed. Here is the secret of the Western Merino sheep eating seven or eight bushels of corn a year, and doing so marvelously well. The closely-confined sheep of Vermont could not stand it. Vermont breeders are inclined to think Missouri and Kansas sheep breeders do not do as they say about heavy corn feeding. They do not care to believe it.

About Selecting the Flock.

Selecting means a little more than culling the flock, and is the most direct and reliable way of improvement. The flockowner that expects to improve his sheep by buying all his good sheep will have to keep on doing so. The importance of having a well-defined standard of a proper sheep for the business intended and the circumstances surrounding the plant cannot be overestimated. Without this standard all the selection is guesswork. A Missouri sheep-breeder had an expert select his flock on the basis of fleece excellence. The results were the next clip brought 4 cents a pound more in price than the former clip had brought, though wools were lower in price than the former year. There are other points that should be considered besides the fleeces. The size, form, symmetry, thrift, early maturity, feeding, and breeding qualities are among the most important characteristics in a good flock, but they are not all; there is more in quiet handling, domestic qualities than is generally recognized. A nervous, fussy sheep can never be the most useful, and these qualities in a flock are very objectionable.

The rule with most sheepmen is to select the flock either at shearing or tupping season; both are proper, but the better plan is to keep a dish of lampblack or Prussian blue on hand to mark objectionable animals whenever sufficient cause for condemnation is discovered. Instead of selecting once or twice a year, practice it every day with unremitting vigilance. No matter how good a sheep may be in one or two points, if it is not a paying sheep it should be discarded and one put in its place that will pay.

Cost of Producing Wool and Mutton, and Net Returns.

THE AMERICAN FARMER would like to publish the estimates of cost of wool and mutton by the readers from various sections, individual farms and flocks. No two may agree, since the conditions influencing the cost are so unlike. In doing this, estimate cost of feeds consumed in the year, cost per month of pasturage, interest on price of sheep, labor in management, shearing and marketing. The aim is to get the net cost per pound of each product. The difference between the cost and the market returns will show the net profits. An itemized statement would be nice, but put it in your own way.

Shelter for Sheep in Summer.

It is the impression with many who practice the most humane sheltering of the flock in Winter, and from the cold storms of Spring and Fall, that sheep require proper shelter from the Summer's heat and sun. Experience shows the ardor with which sheep seek the shade during the dry hot weather of this climate. The persistence that sheep exhibit in refusing to abandon fence corners in a hot, shadeless pasture is something pitiful. The satisfaction that shade trees afford should suggest some artificial protection from the fierce rays of the sun. Even the rudest booth of boughs will make them comfortable. The instincts of the sheep should be respected. Place shelters on the highest points in the pastures.

Something About Sheep Dogs.

The most ancient and widely-diffused of all breeds of sheep dogs, perhaps, is the Spanish sheep dog. It is the largest, most savage, and powerful, and resembles the Alpine, or Mt. St. Bernard dog. A wolf or dog of any other race has small chance of its life with the Spanish dog when the flock he has charge of is attacked. His fidelity to duty is remarkable and unequaled.

The Mexican sheep dog is no doubt a descendant from the Spanish, as are the various strains in South America. These strains, though, so far as known, descending from the same origin, have become subdivided into breeds, all retaining the chief characteristics, unsociability, ferocity, great strength, and fierce fidelity to its charge. To educate a dog properly, a strong, healthy, fine-looking pup is chosen and put to suck a ewe that has been deprived of her lamb. The ewe soon becomes accustomed to the pup and the pup soon becomes a member of the flock, and remains with it day and night during its life. After the ewe ceases to have milk, the pup having been carefully fed night and morning at the house, brings the flock home at night to be fed. If at any time the dog should return without the sheep it is punished and sent back to the flock. It is the practice to ascertain the reason for leaving the flock, and if no cause other than hunger exists, a repetition of the homecoming is most severely discountenanced.

The Hungarian sheep dog is nearly the size of a Newfoundland dog, usually white, sometimes varied to a reddish brown, with sharp noses, shaggy coats, bushy tails, and erect ears, resembling a wolf. They are extremely savage to strangers who may offer to interfere with the flock though in the most friendly way.

The French sheep dog is medium in size, has sharp, straight ears, has hair of a dark color, thickest and longest on the tail, which is usually carried horizontally.

The English sheep dog, or butcher's dog, is a *taillers species*, larger and fleeter than the Colley dog.

The Scotch sheep dog, or Colley, is a light, active, sagacious dog, without an equal in the management of sheep.

An eminent English authority says of this invaluable sheep dog: "Neither hunger, fatigue, nor the worst treatment will drive him from his master's side, and he will follow him through every hardship without a murmur or repining." Incidents are not wanting of untiring, heroic devotion and self-sacrifice in the discharge of duty to the flock that make the sheep dog the peer of the shepherd.

A Trainful of Wool.

ST. LOUIS, June 22.—A solid train of 20 cars of wool rolled into St. Louis over the Wabash, 24 hours, from Walnut Springs, Tex. The consignment was rushed through by the Texas Central and M., K. & T., and Wabash in practically passenger time. This is the first full train of wool to leave Texas this season. It is consigned to local parties.

Another Good Lamb.

Mr. Hale, Greenwich, O., has a Shropshire Merino lamb 30 days old that weighs 23 pounds, which he thinks is a good one.

The Cultivation of Pastures.

Pastures are the true basis of all live-stock industries and permanent prosperity of every agricultural country. This statement is not too broad and sweeping. The too common idea of a pasture is an inclosed area in which domesticated animals can be confined securely. Such a pasture may consist of brush and briars, coarse grass, and weeds, grasses that are cropped to the very ground with bare spots of dry and parched earth, of rank, water grasses, with moist, mucky, marsh lands. Oftener than otherwise lands that are unfit or unreliable for grain production without regard to character, food supplies, or healthful conditions for animals are appropriated to pastures. The very first requisite of a pasture is healthfulness. Too many of them are hot-beds of disease and death. Pastures that originally were healthy are not so now from ignorance and neglect, and by conditions of the seasons. To illustrate the influence of seasons, a most charming hilly, blue-grass pasture, with a creek running through it and some rich, narrow valleys on each side, at one point an acre of slough that of an ordinary season had water in it but went dry in very long-continued dry weather. The grass in this slough was a mixture of redtop slough and coarse grasses. One rainy year this pasture grew rank, and the flock that used it did badly and the lambs died of *strongulus filaria* at a terrible rate, and would all have died if grain had not been given to tide them over the enervating influence of bad pasturage. The next season was the very opposite—a dry season, with short, sweet pasturage that seemed very proper. No grain was fed, as apparently none was needed. The acre of slough went dry and the sheep took to the feed, which gave no uneasiness at the time. A little later on it was apparent that the slough was the unsuspected breeding grounds of parasitic broods, and the lambs died as badly the dry year as they had done the year before. One hour's work with the plow would have drained that acre of death; one barrel of salt sowed in that acre would have saved the lambs. It is safe to conclude there are several ways of cultivating pastures—drainage to make the soil healthy; never allowing the pastures to be over-cropped; dividing the inclosure into two or more lots, so the pasturage may be closely cropped during a moist season, and thus made more healthy, or during a dry season animals may be changed from lot to lot, affording a desirable variety of fresh feed for a few days. Blue grass, in any "blue region," is a nearly perfect pasture, but in the best set blue grass sward it is found that other varieties of pasturage can find room to grow and increase the supply of feed. The use of fertilizers as a top dressing of pastures has not received the attention it should. Of all the fertilizers, none are better than barnyard manure for this purpose. The rule has been to haul manure onto the land in the Winter. An experience of many years shows that the right time to put out barnyard manure is as soon after it is made as possible, and that the blue grass or any other pasture will be benefited by a top dressing in June as much as in January. The most careful attention to pure and plenty of water supplies in every pasture must be insisted upon in this connection. Whether the water is from wells, springs, or ponds, a liberal use of salt wherever the ground is moist would prevent the existence and propagation of parasites. Where irrigation is possible the cultivation of pastures would be greatly enhanced.

Wool Sales of the Country and the Cause.

While the values and tone of the market has not met the expectations of dealers, there has been a good demand for wool during the last month, but at low prices. The manufacturers buy cautiously and find a precarious market for their goods. The tariff is all that saves our markets, as the prices of wool in Australia, South America, and the countries of Asia and southern Africa are more than ever depressed. American wool-growers are to be congratulated more than pitied, considering the status of wool markets of the world. The wool market of the United States, low as it is, honors labor; the cheap wools of the world are dependent on the cheap, degraded conditions of human labor.

It is worthy of note that the market for wool and woolens is not more demoralized than it is, on account of the ferocious, combined attack of the tariff reform party in the Free Wool Bill, now being urged in Congress. While our wool-growers are keenly alive to the situation, they hardly know the value foreign growers attach to the success of this bill. To them it means far more than we know of. They would capture our market with the intention of holding it. They know, at least hope, the American wool-grower would be driven out of the business in a year or two, and they could extend their flocks and continue to supply our markets below the prices we are capable of competing with.

Animal Parasites in Sheep.

The steady inquiry as to what ails and what to do for flocks from all sections of the country must be the excuse for repeatedly calling attention to a work issued by the Bureau of Animal Industry by Cooper Curtice, D. V. S., M. D., and published by authority of the Secretary of Agriculture, entitled "The Animal Parasites of Sheep." It is distributed, through Congressmen, for the asking. Every sheepman is needing such a book of information for reference. It is full of facts that should be studied. Hundreds of thousands of sheep die every year by parasites, that could be avoided by the knowledge of causes and cures taught in this work of 210 pages. Write your Congressman at once and secure it. It is not politics; it is sense.

"Live-Stock Increase." (?)

The *Kansas Farmer*, under the above caption, gives as authority the last issue of the United States statistical abstracts quoting the number and increase of various domestic animals for the last 20 years: "Sheep from 96,000,000 to 100,000,000."

Evidently there is some error, unintentional, since the authority quoted gives the number of sheep in the United States in 1892, 44,938,365 head, with a value of $116,121,270.

Some Sheep and Wool Facts from South America.

The United States Department of Agriculture has issued a report on the agriculture of South America, etc., gathered with great care from the most reliable sources. The Argentine Republic is the only country in South America of any considerable importance in wool matters. In 1891 the sheep numbered 70,461,665, valued at $370,061,717. There was an increase in frozen mutton and tallow between 1889 and 1890, but a decrease in wool from 312,000,000 pounds to 260,000,000 pounds; a decrease in sheepskins from 80,000,000 pounds to 59,000,000. Imports of Argentine wool into the United States in 1890, 13,583,448 pounds, valued at $1,400,563. Chile furnished the United States in 1890 $118,948 worth of carpet wool and $62,281 clothing wool. Uruguay, at time of last census (1887), had 15,104,428 sheep, worth 60 cents per head.

In 1890 there were imported into the United States $30,034 worth of Chilean wools.

The sheep industry of South America, aside from the countries referred to here, is curious, mainly for its incompleteness and unimportance.

Some Kentucky Mutton-Lamb Notes.

Early lambs for the Spring market sometimes prove exceedingly profitable, but only when given extra care and feed and intelligently handled. Not only must the dams be well fed, given comfortable quarters, and rich, but not heating food, but the lambs must early be taught to eat a little chop feed mixed with ground oil cake, and thus put on more flesh as they grow in size. Only the plump, thick-fleshed lambs command the top prices. A thin lamb is not wanted, no matter how large his frame is.—*Exchange.*

Large numbers of Kentucky lambs have been sold at five and three-quarter cents.

The Kentucky shippers of sheep have grievances with the railroads, and will appeal to the Railroad Commission.

The Condition of Fleeces.

Wool or anything else should catch the eye of the buyer favorably at first glance. It should bear every possible inspection of the buyer. If good wools, honestly put up, attractive to the buyer and manufacturer, with a trade mark, the name and address of the grower, they will sell for more money, and be sought for in the market more and more every year. This is the top shelf, and not many try to get up there. There is lots of room for honest-thinking wool-growers along this line.

How Pat Accounts For It.

During one of the Afghan campaigns a lot of sheep were brought into the British camp to be slaughtered. They were of the fat-tailed breed, and were a great curiosity to the soldiers, two of whom were regarding them with wonder.

"Arrah," says one, "how do they get them big tails as big as a man's head?"

"Aisy enough, Paddy, me bhoy. You see they be always grazing up hill, and of course the fat runs down into their tails."

THE APIARY.

Hummings.

Those who took their bees out of Winter quarters latest this year did best. May 20 proved to be the best time.

New Hampshire has just instructed a man as to the wickedness of selling bogus honey to the extent of a $100 fine.

W. P. Taylor reports that two young queens mated last year in 31 days after leaving their cells, and did very well.

California beekeepers generally pasture their bees on Government land, and their investment only includes bees, hives, and fixtures.

To prevent bees from stealing the wax from grafts, wrap thin paper around the wax when it is first put on. By having the paper white the wax will be cooler.

It is to the apiarists' interest to build up a market at home, even if he only gets the price at which honey is sold in the large cities he saves the cost of transportation.

W. T. Richardson, of Santa Paula, Cal., is a contractor and builder, and also finds time to successfully manage 1,200 colonies of bees. He keeps them on a mountain ranch.

Western Pennsylvanians, whose bees have feasted for years on the laurel blooms which decorate the hillsides, smile incredulously when people talk about laurel honey being poisonous.

It is a good idea to have the hives in the neighborhood of several large trees, so that when the bees swarm they will have a convenient place to alight. Hives can be much more readily removed from trees than from bushes.

A prominent beekeeper of the West is devoting a great part of his time to the perfection of a device for the self-hiving of swarms. It is hoped that by the end of the season one of these devices will be finished so as to properly perform the work expected of it.

Many orchard men note a great increase in the crop of apples when a hive of bees is kept in the orchard. The pollen is rubbed from their bodies against the pistils of thousands of flowers, which thus become fertilized. Many of the strange freaks of hybridizing varieties are due to the agency of bees.

A Russian has recently settled in Indiana, and is endeavoring to establish a colony of his native people for the purpose of manufacturing and putting on the market a new drink made principally from honey. It is quite extensively used in Russia, and is as popular there as soda-water is in this country, and is not in any way intoxicating. Should this drink be made a success it will mean an increased demand for honey.

It is well to rear good queens as opportunity offers, and keep them on hand in nuclei, so that if a queen fails there is always one to take her place. If I discover a colony of inferior small black bees I do not let them increase. If I have a nuclei containing a good queen I build it up into a strong colony by giving combs of chipping brood from an inferior colony. This keeps it from increasing, and when having an opportunity I remove its inferior queen and substitute a better one.—*Mrs. M. Harrison.*

ADVICE TO YOUNG APIARISTS.

How Beginners Can Make a Few Colonies Pay Well.

EDITOR AMERICAN FARMER: In this age of competition and hard times every farmer should strive to make the small things count. If you have a few colonies of bees out against the back fence that you are having no luck with, just try studying the nature and wants of the bees, and I will wager your luck will change. Now, I suppose a good many farmers have no time to fool with bees, then just try giving them to your son or daughter or wife, and then do not forget to give or loan them some cash to buy a good book or two and subscribe for a bee journal. Two dollars and fifty cents will buy all of the literature a novice will need for a year, and which, studied intelligently, will enable anyone to make a few colonies pay well.

Now, if you are going to begin with bees, I will tell you how I would do it. When Spring comes bees now begin to rear brood (young bees) very fast. This brood is fed on honey and pollen (the little balls you saw the bees carrying in on their legs last Summer), partly digested. Brood rearing uses the pollen up very fast, and when it is all gone, if there are no trees or flowers to furnish any more, brood rearing must cease. This means that there will be no luck in store for you next June, for these young bees are the ones that will gather the honey, and the old bees that went into the Winter last Fall will all be dead before swarming time. Now, to be sure that the pollen will hold out, you should feed your bees some corn-meal and rye flour; one-third rye and two-thirds corn. They will gather this up and use it as pollen. If the above mixture is not handy, most any kind of grain ground fine will do. The way to feed artificial pollen is to put a quantity in a shallow box in the sun near the bees, and then to get them started to take it. Sweeten a little meal with A sugar and throw a little into the front of the hive and right on the bees that happen to be in the way. They will at once begin to clean it out of their hive, and finding it sweet will pack it in their pollen baskets and take it into the hive. When they clear up all that is in sight they will hunt around and soon find the meal in the box.

Even if there is some old pollen in the hives the fresh meal will stimulate the bees to rear more brood, and that is just what you want; get the hive full of bees, the more the better, and then when the time comes you are more than half sure of a good crop of honey.

If your bees are in boxes, logs, nail kegs, etc., you cannot expect to make a fortune out of them, but help them along a little and get them as strong as possible, and in due time I will tell you how to take them out of the boxes, etc., and put them into a nice, new modern hive, not just the bees but combs, brood, honey, and all, and the new hive is not a patent arrangement, costing $5 or $10 either, but a good practical one that you can buy of any hive maker for $1 to $1.50. I have none for sale, but can advise you where to send for them, as I or any reader of a good bee journal will know where most of the factories are and would direct you to the one nearest to you.

Allow me to depart from my subject to say that the bee business has grown so large that several factories send out hives, etc., by the car load. Yes, and quite a number beekeepers ship their honey to market by the car load, too.

But I am writing this for the novice and in my next will tell you how to handle bees with very little danger of getting stung.—S. F. TREGO, Swedona, Ill.

The Beekeeper's Wheelbarrow.

EDITOR AMERICAN FARMER: This is one of the implements, one of the aids in the apiary that is indispensable to the beekeeper who has much to do, and wishes to do it as quickly as possible, easily, and without fret or impatience.

Of all workmen the beekeeper must keep his temper, and of all workmen he is often the most tried. It is certainly irritating to be stung several times on the hands and, perhaps, under the vail, where often the bee makes his way and announces his arrival in a way that may disconcert even an old beekeeper, as much as some of the old beekeepers may say about the insignificance of a sting. One sting is usually enough to make the strongest man wish he was elsewhere.

But what has the wheelbarrow to do with stings? Well, it may have a great deal to do with stings. The presence of the barrow may prevent stinging indirectly. All operations in the apiary must be carried forward as quickly as possible. If a hive be opened for any purpose it must be closed again without any unnecessary delay.

Now, the beekeeper opening a hive, finds that he has forgotten something that he intended to use or to put into the hive. He knows where it is exactly, and leaving the open hive runs to get it, but it—that of which he is in search—has changed places several times since he saw it last, and it is 10 or 15 minutes before he gets back to the hive, and when he does return he may be met by a volley of stings, for during his absence bees from other hives have invaded as pirates, seeking to rob, and the result is many dead bees and perhaps many stings for the beekeeper.

Every beekeeper should prepare an ordinary wheelbarrow for his or her special use in the apiary. There are barrows made expressly for the beekeeper's use, but they are no better than others; besides, the beekeeper wants a barrow that can be used for other purposes if required. The barrow may be so arranged that it may be made to carry all the tools of the apiary—the smoker and its fuel (decayed wood) and matches, a queen cage (often wanted to catch a queen), frame-holders, awl, screw-driver, sharp knife, frames with and without foundation, vail and gloves, if used.

The place for all these things should be in or on the barrow, so that when the beekeeper starts out and trundles his barrow before him, he has with him all that he may need in any ordinary operation in the apiary. In swarming time a hive stands on the barrow all ready. The barrow is useful at this time, for the bees may swarm so low that the hive on the barrow receives the cluster as the beekeeper shakes it into the hive.

A little ingenuity on the part of the beekeeper will give him a barrow that is a veritable work bench on wheels, or on one wheel, with pockets, shelves, and "hooks and eyes," and all tools in their proper places. One beekeeper had an umbrella on his barrow, and could thus work in the shade.

In an apiary, as anywhere where systematic work is done, every tool required must be quickly accessible. If this be carried out with respect to the barrow, working in the apiary is easy or easier and satisfactory. When there is work to be done in the apiary it must be done quickly.—JULIA ALLYN.

The Meeting in Washington.

D. A. Jones says in the current issue of *Gleanings:* "The good feeling that exists between the beekeepers of Canada and the United States cannot be broken by a half dozen 'Incorporations.' Next Fall, when we all meet at Washington, and get to shaking hands and talking over bee matters, we shall never imagine there was such a thing as 'Incorporation,' or anything else that would tend to sever our friendship." This is well said, and it is to be hoped that the friendship existing between the beekeepers may be still stronger cemented on the occasion of their meeting at the Capital City.

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BOX HIVES.

A Few Words Against Their Use.

EDITOR AMERICAN FARMER: Where is there an intelligent beekeeper who now keeps bees in movable frame hives, who would, if given the old ones, and paid cost for the improved ones, put his bees back into the old box hives? I don't think there is one to be found. A good many ask, "What advantage is there to be found in the movable frame hives?" First and foremost, the honey can be gotten in a shape that will be presentable to the markets in competition with the honey that is now put there, and the beekeeper will not be forced to sell his honey at a big discount, because it is in an inferior package. Some beekeepers prefer to produce extracted honey, and to do this they must have movable combs that can be used in the extractor.

In Spring, if one wishes to feed his bees—and this is very often the case—he can do so by simply giving them a comb of honey taken from some colony that has plenty, thus very often saving a colony from starvation.

Colonies very often become queenless in Fall or Spring. With the old box hives it is almost impossible to find this out until too late, but with the movable frame it is a very easy matter to simply raise out a comb and see if there are eggs or young larvæ. If neither of these can be found on the 1st of April, one may be sure the colony has no queen, and it should be united with one that has, or else be given one from some weak colony. With the movable frames queens can be found, and their wings clipped if preferred. Queen cells can be cut out and saved for raising young queens. Young and vigorous queens can be introduced, and frames of brood can be given weak colonies to help them along, and with full sheets of foundation, which should always be used, the bees may be prevented from raising a multitude of drones. These are simply the male bees, and not one-tenth part that are always found in an apiary are needed, and they are consumers, and not producers.

What man or woman is there with any pride whatever who enjoys taking an intelligent beekeeper into a bee yard composed of old box hives, sawed-off logs, and perhaps a few old shoe boxes, nail kegs, etc., and showing him big 20-pound boxes made of shingles, perhaps full of nice, white honey that would be very salable if put up in the right shape? And what box-hive beekeeper is there who does not enjoy going among the improved hives of some wide-awake, tidy beekeeper who can present honey no better than his own, but put up in nice, white poplar sections, inclosed in paper cartons bearing the beekeeper's name and address? What horseman is there who can get as much for his horse when in the barnyard as he can after he is well groomed and taken care of? What artist is there who would have his fine painting go before the public in a rough wooden frame? What intelligent beekeeper is there who wants his nice, white clover or basswood honey to go on the market in a rough, dirty, untidy box? I tell you, my friends, box-hive beekeepers, if you intend to keep up with the times you must abandon the old box hive in order to produce a salable article. Or, if you will not adopt the movable frame hive, at least have clamps made to hold sections that will fit your old hives and get your surplus honey in presentable shape.

"Clothes don't make the man, but they has a mighty sight to do with his looks arter he is made."—W. G. LARRABEE, Larrabee's Point, Vt.

Tobacco.

Chicago expects to be a leading leaf market inside of a few years.

It is believed that very little tobacco remains in the farmers' hands in the interior.

New York dealers say that their stocks are going through sweating in the best possible way.

The experiment of forced sweating in a moist atmosphere, heated to 95°, has given good results in Ohio.

The Amsterdam dealers say that the reports from Sumatra are even more discouraging than ever, and prices are going up almost out of sight.

There are good prospects in Iowa and along the Missouri River, but it is feared that the crop in northern and central Illinois has been drowned out.

The reports from Cuba are also bad. There is plenty of tobacco, but the quality is poor. One buyer in a large district says he cannot find more than one bale out of five fit to send to the United States.

The Connecticut Valley growers are turning their attention to a still greater improvement in the quality of their products. They have been getting such big prices for their best leaf that they are encouraged to try to do still better.

Pennsylvania planters have used machines for the first time, and express entire satisfaction with them. The cost is about $3 per acre, and one advantage possessed is that the machine waters the plants as they go into the ground.

Pennsylvania dealers are well satisfied with the leaf of '91, admitting that it is the best they have had in years. It did not look promising when it went into the warehouses, but it has turned out all right, being silky in texture and free from white veins, except in few instances. The white veins have disappeared to a great extent with the curing.

Railroad Extortion in Florida.

EDITOR AMERICAN FARMER: Much excitement exists all over this State on account of the extortions practiced by the railroads. The lumber mills engaged in getting out yellow pine are shutting down generally rather than submit to the robbery. The merchants and farmers are complaining with equal loudness. The roads are giving a black eye to business generally.—J. H. LAMMONS, Lee, Madison Co., Fla.

Green Manuring in France.

Among the French farmers a common custom is that of green manuring, or growing crops to be turned under as manure. The French have been able to bring lands which were very poor into a profitable state by this means.

Success in Farming.

EDITOR AMERICAN FARMER: The question, "Does Farming Pay?" is becoming quite a general one, is attracting great attention, and, alas! too many, speaking from experience, are inclined to answer the question in the negative.

If the question was modified a little, and the word "good" inserted, so as to read "Does Good Farming Pay?"—then there would be no uncertainty as to what the answer would be. The fact is good farming has paid, is paying now, and, doubtless, always will pay.

The kind of farming in which our people here are mainly engaged is "truck farming" or "market gardening," growing all the early-market garden crops for the great Northern markets.

Our truckers, as a class, are making money, not so fast, it is true, as they did 10 years ago, but still they are getting ahead. When we say our truckers, we mean our good truckers. In passing down Main street, in Norfolk, the finest building between Church street and the Academy of Music, viz, the Ballentine Building, is owned by Mr. Ballentine, and was built from the profits arising from truck farming. It is an extensive and an expensive building, and a credit to any city. Mr. Ballentine owns a large truck farm close to the city, and his annual profit from the cultivation of the same is not far from $25,000 as the maximum, and $10,000 to $12,000 per annum profit as the minimum. Mr. Ballentine has also lately begun the erection of a fine market-house at the intersection of Queen and Church streets, in Norfolk. The building is 271 feet long, 75 feet wide, and two stories in hight. It, like his Main street property, is well and substantially built of brick and iron, and is an ornament to the city. It also is built with the profits made in truck farming.

On the Portsmouth side of the harbor, one of the finest business blocks there is the Kirn Block, built by Mr. Henry Kirn, a Western Branch trucker. Of course, all of our truck farmers have not made enough from their work to build business blocks in the city, but a large majority of them have made money, more money, we may safely claim, than any other equal number of men engaged in agricultural pursuits in any other section of our country.

Why farming does not pay is too big a job to undertake to explain in one letter. We must either let the job alone entirely or take it up in sections. The rapid settlement of the Great West, largely by a foreign element, every man of which, as a rule, is a good producer of all the staple farm crops (children included), but is a poor consumer, and that is one of the main reasons for the great difference between supply and demand experienced these late years.

But the great reason why farming has not paid better is this: Of all lines of business followed in the entire country, there is not another so lacking in system, in order, in regularity. There is positively no system about it, as pursued by three-fourths of the farmers. It is this class that are not making money.

To show that farming can be made to pay here, we refer to an offer of the sale of a farm in this vicinity on the following peculiar conditions or terms. The farm contains 200 acres, of which 150 acres are under the plow, and the balance in woodland and pasture. The farm is a good one, and is held at $12,000. It has $6,000 worth of new buildings, and rents for $600 a year, cash rent.

The owner says that any good first-class man and manager can have the farm on the following terms, viz.: The buyer is to put in and cultivate in good, workmanlike manner 20 acres of the cleared land to Irish potatoes and 10 acres in strawberries. Three-fourths the gross sales from these two crops, grown on one-fifth the cultivated land, will be accepted by the owner as an annual payment until the said farm is paid for. Notice the fact that three-fourths the cash sales from one-fifth the cultivated land is accepted as an annual payment until the farm is paid for.

Or, the owner says, that if this offer is not fair enough, he will make another, viz., all the cash sales from one-fifth the land to be turned over to him for a period of seven years and he will give a full deed to the farm. What does such an offer show? It shows confidence on the part of the owner of the farm that "good farming" will pay. In such a case it must pay, else the owner loses money.

Talking the other day with a large landowner here, he stated that he had land that was good for nearly two tons of timothy and clover at the first cutting, and as much more at the two following cuttings each year, and that he could afford to sell such land at $40 to $50 per acre, in 40 acre tracts, and let the buyer pay for it as follows: By putting ten acres (one-fourth of it) into clover and timothy, and caring for the same in good shape, and turning over the proceeds from the sale of the hay, as annual payments, until the farm was paid for. In other words, the gross sales of hay from one-fourth the land would be accepted as a yearly payment until said land was paid for. Now, unless such farming pays, the owners of such properties as those above noted would get badly left.

The great trouble with the "great American farmer" is just this: There is too much "spread" about him. Instead of being so "extensive," he should be more "intensive." He is covering too much ground and devoting too much attention to one single line of farming. In some places he raises too much corn; in others too much wheat; in others too much cotton; at Norfolk, Va., too much truck, etc. Mixed farming, followed on strictly business principles, will pay, and pay well. Just now our farmers in southeast Virginia, aided by those of northeast North Carolina, have succeeded in glutting the Northern markets with potatoes, simply because they sent too much imperfect stock, and hurried their potatoes on to the market faster than the market would stand. Like some of the skilled professions, such as the law and medicine, there is plenty of "room on top" in agricultural pursuits. Whenever and wherever the farmer is fairly on top of his business, and directs it with the same care, attention, and skill that the business man is compelled to give his business, just then and there "farming will pay."—A. JEFFERS, Norfolk, Va.

THE DAIRY.

Skimmings.

The law of Vermont fixes the legal standard of butter fat in milk at 3.25 per cent.

Never send out a package of butter that you are not proud to have your name and address on in plain letters.—*H. S. Matteson, Morris, N. Y.*

A dairy cow is one of the most economical producers of human food known. She will make three times as many pounds of solid food in a year as a steer will of beef.

The intelligent dairyman must study incessantly. Every cow has her peculiarities, which must be considered, and adaptations made in food and treatment. Success in almost everything is won by attention to details, and this is particularly true of dairying.

The French have found that the Jersey and Devon cattle are less liable to disease than the Durhams, and this may account in part for the fact that there is an apparent increase in the number of these cattle used in Paris dairies.

Buckwheat is an excellent food, enabling the cows to produce a superior quality of milk. Being very rich in nitrogen, many farmers prefer the bran of it to that of wheat. The kernel is known to be more valuable than that of wheat or oats.

The French have developt the making of butter to a higher point than any other people in the world, and their product brings a bigger price than any other people's. We can raise just as good butter here when we set ourselves earnestly to learning how to do it.

One cannot expect to be able to make good cheese unless he first trains himself to know how to distinguish good from bad milk. It is a grave mistake to think that bad milk can ever be made right, and that which is sour or dirty in any way should be immediately discarded. Cleanliness always pays.

A "gage" of cream is the amount required to make a pound of butter, and the cans used by the patrons of the creamery are marked on the glasses in their sides to show the number of pounds of butter the cream which has risen will make. At present 11 cents a gage is in general a fair average price.

Since the organization of the Elgin (Ill.) Board of Trade, 20 years ago, its membership has increased from 72 to 270 members, and it has established an envious reputation for its products. During 1891 the sales of butter were 25,006,652 pounds, with an average value of 25¼ cents per pound, and 6,232,402 pounds of cheese, at an average of 8 cents per pound, making the total cash value nearly $7,000,000.

An economical and efficient substitute for whole milk for calves has been found in skimmed milk, with the addition of flaxseed. Experiments recently conducted at one of the agricultural stations served to demonstrate that calves thus fed were less interrupted in their growth by weaning. It was also shown that a saving of $1.11 per month on each calf was effected by the substitution of the flaxseed. This system of feeding should recommend itself to progressive dairymen.

When it is known that a cow gives forth her milk by reason of a certain nervous action, such as is exercised when a person sheds tears, the fact that milk cannot successfully be produced by artificial methods will be more fully realized. The nearest possible approach to the sensation of suction by a calf is that afforded by the hand. For the same reason that a person cannot cry when simply ordered to do so, and when the nervous system is not excited from any cause, a cow cannot and will not give up her milk unless she is subjected to a sensation similar to that of being sucked by her calf.

Preserving Milk.

In these days of progressiveness feats are heralded which in earlier days would have been looked upon with incredulity, but which are now received with perfect credence. The sending of milk in a sweet condition for long distances may be classed among the number. A quantity of milk was recently sent from Normandy to Paris without resorting to any outside methods for its preservation, except keeping it perfectly clean. It arrived in an undisturbed and sweet condition. The process used was the Pasteur plan of heating the liquid and then quickly cooling it down. This served to sterilize the microbes in the milk. It has been shown that heating the milk to a temperature of 158 to 167° Fahrenheit does not kill the septic animalcules, but serves to prevent their multiplication. Even at the boiling point the ferment germs are not destroyed, and an additional heat of 12 degrees is necessary to assure their destruction.

When the Butter Won't Come.

Nine times out of 10 the reason the churn does not churn in Winter is because the cows have been in milk a long time and give a milk which is somewhat viscous. Owing to this viscosity or stickiness it would seem that the fat globules are not able to clear themselves and cohere to form the larger butter globules. The best way to remedy this difficulty is to have part of the cows fresh in the Fall, in which case the difficulty usually disappears. If milk is set in deep cans pour in one-fifth of the bulk of warm water at time of setting; perhaps this will even help in the shallow-pan setting. Since the cream from shallow-pan setting is very thick try diluting it with water, and also use a little salt at churning time.—*Prof. W. A. Henry.*

A Dairyman's Prayer.

A college professor recently dropped into a prayer meeting in a district where dairy interests are supreme and heard a gant old dairyman pray, as follows: "Help us, O Lord to follow Thee, no matter what John, Mary, Martha, Bill, Tom, and all the rest may say. Make us through trains for the Lord, not stopping at every little station where they happen to see a milk-can put out. Don't let us fire blank cartridges at the devil, but load up with shot and shell. Help us to cut off the corns and the bunions that keep our feet from walking in the way of the Lord."

AMERICAN FARM DAIRY.

Putting the June Color in Butter—Keeping Butter for Winter Use.

EDITOR AMERICAN FARMER: In the last issue I informed your readers how I colored butter artificially when the June color faded. This should always be done by adding prepared butter color to the cream before churning. The color is harmless, but if it was strychnine, the quantity used for this purpose would not do the human stomach a particle of harm. Three ounces of it in a 250 pound batch of butter, or a thousand pounds of cream, is the highest amount needed in Winter to give butter in our creamery the June color. It simply gives beauty to the work, and is one of the agencies of a higher civilization and greater enjoyment. The manufacturers of the color give the needed instructions. Follow directions first, and you will soon learn to vary it to please yourself or customers best.

I advise the packing of butter in small stone jars for Summer trade or use. Then, no ignorant merchant or dealer will spoil your product by mixing it with other butter or giving it a second working. The single cow of the city or village family can be so treated, and perfect butter made from her cream. Of course, if you use open pans to secure the cream in the common pantries, room dust and sweeping dust will settle on the cream, and in hot weather flies will speck it, millers and small insects get on to it and stick fast in the cream; but the good housewife or servant can pick most of them off with a fork. As the cream will be very thick, it must be diluted with pure water or skim milk fully one-half, and made quite thin before churning; then ripened, if not already sour, cooled down to proper degree, and a concussion churn of some kind used, so pure butter will be made in the granular form I mentioned.

The little pellets of pure butter can then be washed in the churn free of buttermilk. A single cow's cream may be kept in fair condition, if a cream can is provided large enough to hold all the skimmings of cream that are made during the week, and every time a fresh mess is added to the cream stir it all up well until the last mess is added, thus completely ripening it, according to instructions before given. Cool it down and churn.

Farmers who make a little surplus of butter some seasons of the year, but in Winter time, perhaps, do not have enough, should store their surplus butter in strong, brine water kept in good, new, clean, oak barrels, or, better still, in 20-gallon stone jars. I use the jars. Every time you churn wrap the whole churning of butter, as soon as salted, in a thin muslin cloth, and sink it down in the brine water. Have a plank follower and weights to hold it down all the time. In this manner it may be kept sweet and pure for months, and when the market is down in price, hold it for Fall and Winter trade, or the single cow dairy-family can keep it in this manner for the Winter supply, and not eat any butter but their own.

The regular farm dairy should work up a sale for their butter near home, if possible, direct to customers in the city or village, and supply them the year around at from 20 to 30 cents per pound, or more. If you can get it, be sure not to promise more than you can supply. If you have a surplus some time during the Winter when butter is high in market, take this butter from the brine water and pack it into large jars or white ash butter tubs, and send it to market for sale. Never mix with it fresh Winter butter, for you will have a striped mess of store butter, and spoil the whole job. Every commission merchant who sells it will run a long butter tryer down through the whole mass, and draw out a plug of butter which will show the true contents of the package. It should be all colored alike, and smell and taste alike, or he will condemn it at once, and sell it for a lower price.

With the intelligent and perfect care of milk, the exact and methodical manufacture of butter, as I have described, any good butter cow will earn the farm dairy from $50 to $75, or more, annually, and the entire cost of keeping her need not exceed $16 per year. These are stubborn facts, and every farmer who fails to accomplish it does not meet the full requirements of a good farmer or develop the possibilities of his farm. Such a man needs a higher education, and not all legislation, to help him out of mortgage trouble on the farm.

Of course, there may be many farms better suited to other forms of agriculture than the dairy, but every farm needs their own supply of fresh milk and good butter, and the owner should study these dairy articles with care. Women can do the work, of course, if necessary. Misfortune or ill health frequently compels the most unfortunate changes, and the farm is sometimes better supplied with girls than boys. If so, they may be utilized for this business in their youthful days, and it will in noways hinder their best development into model wives or mothers, and fit them well for the noblest mission of women.—HENRY TALCOTT.

An Industrious Family.

Edward Armstrong, of Beetler County, Kan., has a family of seven daughters, of whom he is justly proud. During the last three or four years these girls have done almost the entire work of the farm, raising and caring for good crops with as much skill as men. They attend successfully to the harrowing, harvesting, seeding, caring for the stock, etc. During the Fall months they gather and crib the corn, and have even hauled it to market. The father of these industrious girls devotes much of his time to expounding to the oppressed farmers the doctrines of the People's Party.

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THE ORCHARD.

Cullings.

Keep weeds out of the young orchard.

Washing trees with common soft soap kills borers.

Only about 10 per cent. of the apple trees planted ever bear fruit, and the chief cause of this waste is lack of care.

If the moths of the peach borer have appeared, it is well to whitewash the trunks of the trees at once. A thick lime wash, with a tablespoonful of Paris green or London purple added to each pailful, is recommended. The wash should be applied at least two inches below the surface of the ground.

It is claimed that it is not so much the growth of fruit as the formation of seed which exhausts the tree, so by picking off from one-half to two-thirds of the fruit set, the tree can use its strength to form fruit buds in the Fall for the next year's crop. It is even better to have too little than too much fruit on the trees.

Two enemies to cherry culture are bark bursting and black knot, but with proper care neither of these need be serious. For bark bursting, train a low head, beginning not more than three feet from the ground, or else protect the trunk from the rays of the afternoon sun by a board fastened on the southwest side of the tree.

Soil for pear trees should be thoroughly underdrained and composed of about 75 per cent. sand, 15 per cent. clay, and the rest vegetable matter. This should rest on a subsoil of clay and sand. If the soil is too rich, it tends to make the trees grow heavy branches, rather than bear fruit, and they are also more susceptible to blight.

Pear leaf blister is caused by a mite (*Phytoptus pyri*) so small that a microscope is needed to see it. Sulphur preparations are used for killing them, but as they remain most of the time within the protection of the blister on the leaf, this remedy is not always effectual. Heavy pruning is the best cure, and do not forget to burn the leaves and branches cut off.

Apples.

For those who use their brains the apple is an especially proper article of diet, and for nervous people and those suffering from any weakness of the spine, for apples contain more phosphorus than any other known fruit or vegetable, and this phosphorus is admirably adapted for renewing the essential nervous matter of the brain and spinal cord. The acids of the apple are also of signal use for those persons of sedentary habits whose livers are sluggish in action, these acids serving to eliminate from the bony noxious matters which, if retained, render the brain heavy and dull, or fetch eruptions to the surface of the skin, bring on jandice or like troubles.

When eating meats richly cooked, one should accompany such dishes with plenty of apple sauce, as it will neutralize any excess of chalky matter engendered by eating too much meat. For sour stomach, too, the apples should be eaten, as its salt and juices are converted into alkaline carbonates, which tend to counteract acidity.

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The Use of Sulphur in Fruit Drying.

The question of sulphur in fruit drying has been discussed to a considerable extent, and many have endeavored to impress upon the public the injurious effects which sulphur has upon fruit exposed to its fumes. When sulphur is burned, sulphurous gas is formed, and this is a well-known disinfecting and bleaching agent, second only to chlorine. Without doubt, it does diminish the flavor of fruit or of anything else which it touches. Thinly-sliced apples and pears, when exposed to it assume a greenish white color, attracting the eye of the purchaser, who too often does not know that the natural flavor is lost, and that fruit thus bleached is not so good as the dark-colored kind cured in the old-fashioned way.

Trees in Paris.

The annual report of the Superintendent of Tree Planting in Paris gives the number of trees planted at 87,665, each of which represents an initial cost of $35. The annual expenditure for maintenance is $50,840.

Oldest Yew Tree.

In the churchyard at Darley Dale stands what is supposed to be the oldest yew tree in the world. It is 33 feet in girth, and the fabulous age of 3,000 years is attributed to it. Modern vandals have so hacked and gashed its trunk that a fence has been built around the tree to preserve it from further mutilation.—*New York World.*

Why it Is.

Have you ever stopped to consider why it is that rain does not deprive growing clover or grass of any of its sweetness? A film of gum covers each of the leaves and flowers, and it is this which successfully keeps out the rain, acting as a gossamer. After the grass is cut this gum becomes hard and cracks, meantime allowing any air and moisture to enter and deprive the grass of its sweetness. It is on this account that rain works such injury to hay which has been partially or wholly cured.

Improved Farming Around Norfolk, Va.

EDITOR AMERICAN FARMER: When I came to this section of the country (Norfolk, Va.), 12 years ago, I engaged in the dairy business, selling from 100 to 125 gallons of milk in this city daily at 10 cents per quart, at retail, and from six to eight cents per quart at wholesale.

Our milk cows, at least 99 per cent. of them, were brought here from northern and western points. It was quite out of the question to go out in the country around Norfolk in any direction and find a good milk cow, suited to the dairy business. They were not here. There were not 50 good milk cows within 20 miles of Norfolk.

Now, there are, without doubt, at least 2,000 good milk cows in this section. The number is increasing very rapidly, indeed. They are mostly grades—Jerseys predominating—although there are a large number of cows entitled to registry, and doubtless many of them are registered.

Ten to 12 years ago it was nothing unusual to go on to a truck farm, where the owner was selling from $5,000 to $20,000 worth of "truck" annually, and not find a cow on the place. Butter on many a table was a rare thing, and, when found at all, was generally so strong as to be able to rear (rare) around on its own account. Milk was out of the question, and cream entirely *non est.*

Then, there was no hay grown on the truck farms, but was all bought in the city. Now the old family cow, and often two to a half dozen of them, are seen on nearly every farm. Clover is also found on all the farms. We seldom see baled hay moving from the city to the farms, as we used so frequently to see 10 years ago.

The rapid increase of milk stock, and the equally rapid increase in the hay crop in southeastern Virginia, are two very encouraging signs, indeed. And we are prepared to assert, without fear of successful contradiction, that if the Virginia farmers will pay more attention to the milk cow, the sheep, and the Spring pullet, and grow more hay, he will find the balance sheet looking better at the end of the year.

It is almost an absolute impossibility to keep up the fertility of a section of country without farm stock and the regular staple annual farm crops.—A. JEFFERS, Norfolk, Va.

Good Roads.

The fact that a great share of the prosperity of this country depends directly and indirectly upon the condition of its roads should be apparent to every thinking person, and every move which in anyway tends to the improvement of bad roads should be promptly and ably seconded. Aside from the comfort and appearance of good roads, there is another point to be taken into consideration—that of economy. At the first, a bad road may cost but little, but when an account is taken of the different amounts paid for its repair from time to time, it will be found that a good road, properly and more expensively prepared, is the better investment. It stands to reason that good horses cannot be raised on bad roads, and the fine horses emanating from the blue-grass region of Kentucky are living monuments to the industry and public-spiritedness of the farmers of that section in maintaining such excellent roads.

Since it is the farmers who produce the real wealth of a country, it is but justice that their country should give them all possible advantages.

Good roads save time and strength. This fact has been recognized by several countries, but the system adopted by the French Government is especially worthy of emulation. There are in France 130,000 miles of rock roads, and $18,000,000 are annually expended in repairing them. An official is placed in charge of all the main roads; his subordinates are frequently required to furnish him with complete reports, and thus he is kept informed as to the condition of the roads in all parts of the Republic.

At the 20th Annual Grange meeting of the Wisconsin State Grange, President Carr stated that our present haphazard method should be replaced by some efficient system, and in order to attain this, the State should take the matter in hand. In the town of Milton, Wis., there is over 20 miles of good gravel roads. This result has been obtained by voting one mill tax at each Spring election. This vote also instructs the Supervisors as to what highways are to be graveled. First, the roads are turnpiked, then the gravel is put on about 10 inches thick and from 12 to 14 feet wide, with furrows at each side to keep the gravel in place. In this way very good roads can be made.

THE GARDEN.

Pluckings.

If your potato plants are too close treat them as weeds and thin them out.

In August more sowing of peas may be made to come in late. They should be sown deep.

When the early peas are over replace them by celery, beets, and turnips for a late crop.

If the soil is mulched around currant bushes the fruit will not be splashed with earth and sand during heavy rains.

If weeds are taken in hand before they seed there will be a vast saving of work. Let the hoe and rake be continually at work.

English gooseberries, if not in a shady place, should be mulched to keep the roots cool. They do better if planted in the shade of large trees.

The Golden Queen raspberry is a delicious fruit, but so delicate in color and flavor that it soon spoils after picking, and is therefore unsuited for marketing.

Both corn and potatoes send out from the young plants long roots which reach quite a wide circumference; so in making hills of earth around the plants be careful to avoid cutting off the ends of these roots.

Blackberries for table use should never be picked until dead ripe, and the common complaint about sourness and hardness of core will thus be avoided. Their flavor may be greatly improved by allowing them to stand over night in a cool place.

The best fertilizer for sweet potatoes is phosphate of lime, which should be liberally applied when the plants are set out and a handful or two sprinkled around them when half grown and hoed in. The running vines should be gently lifted from time to time to prevent their taking root and starting new growths.

Asparagus needs considerable water, and does best in a showery season. It needs also rich soil and plenty of room for its long roots. Four or five feet apart is not too great a distance to plant. Good drainage is very necessary, and though plenty of water is required the plants should not be flooded.

Hellebore is being used as a remedy for the currant worm. It is applied in the form of a white powder when the leaves are wet, or it may be mixed with water and sprayed with a garden syringe. Some care should be exercised in the use of hellebore, as it is an irritant poison and should not be inhaled.

Raspberry bushes should not be set too near together. Seven feet is near enough to plant rows, as the intervening space is soon filled in by growth. The bushes should be pruned early and mercilessly, and if the laterals are well trained, thick plants will be formed, yielding immense crops.

The best fertilizer for potatoes is phosphate of lime. It is used from 300 to 1,000 pounds to the acre. The most successful growers, as a rule, use the larger quantity and sow wheat after the crop is taken up. It is a good plan to use one-half of the fertilizer before planting and one-half of the remainder scattered in the drill, and the rest at the working of the crop before the blossoms appear.

At present the calla lily bulbs are a common vegetable in Japanese markets. They are so prolific and palatable that their cultivation in the United States may be reasonably looked forward to. The plants grow readily in swamps, and farmers in Florida have begun raising them for market. The bulbs reproduce themselves underground, so that the grower simply has to dig up the offshoots, leaving the original plant to go on reproducing.

Writers have attributed the drying up of the blackberry and raspberry canes to dry weather, hot winds and such reasons, when in reality it is found that a little red spider (*Tetranychus telatius*) is the cause. It works on the under side of the leaves, destroying their functions, and they soon dry up and fall. Kerosene emulsion is fatal to this insect, and the berries may be saved if the bushes are sprayed just before the fruit begins to ripen.

Tomato plants to be profitable should be short, stocky, and have plenty of roots. Long drawn out, top-heavy plants with tall stalks are not desirable, but if no better can be had the tall plants can be improved by setting in a shallow trench dug at an angle of 20 to 25 degrees, and covered nearly up to the branches, which should be turned upward and tied firmly to a stake. New roots will then push out from the under side of the stalk, and a fair crop will be produced.

Cutting off the Blooms.

The old fancy that cutting off the blooms of potatoes will increase the weight and quality of the tubers seems to have broken out afresh, but careful exeriments made in England and Switzerland disprove this. The theory was given to the world by a German experimenter, who published the results of a series of experiments which showed that a considerable gain in the weight and quality of the tubers resulted in cutting off the blooms.

An account of a series of experiments made by an intelligent Englishman seem to be so thorough that it is worth while to give his results. His experiments extended over a period of three seasons, with but one variety, Paterson's Victoria potato, a profuse bloomer, and at that time in general cultivation in England. In no single year was there any difference in the quality and weight of the potato, and the average results showed that there was no gain derivable from this operation.

Thorough experiments were made in Switzerland to test the truth of this theory. The many varieties of potatoes grown in that country were subjected to the experiment. The test was carried through several seasons in order to make the result more accurate. At the close of the experiments the conclusion reached did not corroborate the theory advanced by the German experimenter.

The Englishman, after reviewing the experiments made in Switzerland and those by himself, draws this conclusion: "This system, therefore, is of no use to us while we have our present varieties of potatoes, no matter what it may be elsewhere, and if properly tested it will in all probabilities be found to be of little value anywhere."

Growing Melons.

EDITOR AMERICAN FARMER: The best soil for the watermelon is a light, warm, sandy loam, yet I find some soils, even light soils, that will not produce fine melons with all other essentials given. Whatever tends to compact the soil, whether rainy weather or a deficiency of vegetable matter, is detrimental to the crop. I take the best soil I can arrange to plant, and in the Fall scatter tobacco stems liberally over the ground. I find, contrary to many, that the richer the soil, provided it be warm and light, the surer the success. I break the ground very deep before the stems are put on, and then before planting break a little deeper, then work it mellow to the bottom. If one is not careful they will get the soil mellow on top to perhaps half the depth, and the other half full of large clods. This should not be. I prefer marking both ways, as the plants can be worked better. At each crossing I put two shovelfuls of good manure. The best I have used was well rotted, forest leaf mold and stable manure put in alternate layers of equal proportion. This well rotted and turned over until well mixed. This manure may not rush the plant while young so much as all stable manure, but it will bring more and larger fruit. Bones dissolved in ashes and a handful of the mixture put in the hill adds greatly to the crop.

I make large hills (not high up, but around) and drop at least a dozen seeds in a hill. I shall this Spring make a line across the hill and plant on one side; then in about 10 days plant the other side. Planting so many seeds in the hill has two important reasons. So many plants aid each other in raising soil (which is apt to become crusted on top), and they will come up better. Some seed give stronger plants than others, and will bear better fruit. Planting so many in the hill we are more apt to get strong plants. These can be selected after the plants are up some size. I leave only two plants in the hill. As soon as the plants are up well, the soil should be made loose around them, being careful not to disturb the young plant. I like deep cultivation; at least for the first three cultivations, then shallow until done. I plow the ground thoroughly between the hills at each plowing, and I like to cultivate them every few days. In cultivating the vines the least they are molested the better, as moving them injures them after they begin to run much. I may give a few more hints on melon culture before selling time.—THOS. D. BAIRD.

The Cultivation of Celery

Considering the comparative ease with which celery can be grown and the many uses to which it can be put after its successful cultivation, a crop of this garden plant should suggest itself as a desirable addition to the farm. This plant is a biennial, producing seed in its second year. If sown very early it will mature in one year. As a rule, this crop will thrive on any kind of soil, but it must necessarily have the same food that is required by all the plants that are succulent and tender. With fertile soil and good cultivation this crop can be made a source of great profit. Where a small crop is to be raised the seed should be sown so as to have the plants ready for setting out in July. For large crops, however, plants can be purchased as cheaply as they can be raised. During later years the larger varieties have almost been abandoned and the dwarf varieties grown. The smaller varieties are the more tender of the two, and require less labor in earthing up. The common method, and by far the best, of planting is to do it in rows three feet apart, with the plants six inches apart. They should be kept well cultivated by the hoe or hand garden plow until time for the last earthing up, when a shovel or spade should be used. Then the stems should be drawn together carefully by the hand and the earth banked up against them to keep out the light. The top leaves only should be left exposed. The plants should be taken up before the top leaves have a chance to freeze, packed, taken to a cool cellar, set upright and close together. Care must be taken to have a cool and dry place for storing them, as should they become moist parasites will be more apt to attack them. Being a native of northern Europe, this plant needs a cool climate, and when planted well it succeeds in any part of the northern United States and Canada.

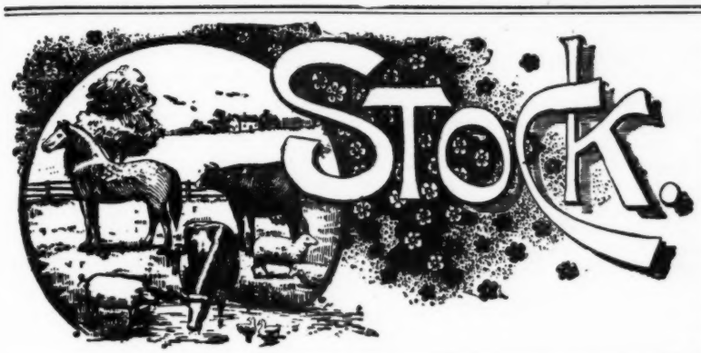
Better Use for His Straw.

John Butterworth, of Trenton, N. J., thinks he can do better with his rye straw than using it for fertilizer. This is the way he figures: One acre of land will yield 15 to 20 bushels of rye and one ton of straw. The present price in New York markets of rye is 75 cents per bushel, and the price of rye straw thrashed straight and bound is $19 per ton. Ten acres of rye, yielding 15 bushels to the acre, if sold at 75 cents per bushel, will amount to $112.50, and the 10 tons of straight thrashed and bound straw, if sold at $19 per ton, would amount to $190, making a total of $302.50 realized from the 10 acres of rye and straw. According to Prof. E. B. Voorhees, the New Jersey State Chemist, the real manurial value of rye straw in the manure pile is only $2 per ton; consequently, if the old plan is followed, and the 10 tons of straw is deposited in the manure pile, the value of it there, according to Prof. E. B. Voorhees, is only $20, while, if the 10 tons of rye straw were sold, it would bring $190. Take the manurial value of the 10 tons of rye straw, which is $20, and with $20 buy stable manure or commercial fertilizer, and it will enrich the farm to the same extent as if the whole 10 tons of straw had been deposited in the manure pile, and yet leave in the farmer's pocket a net profit of $170. This, while enriching the farmer, surely does "not rob the farm."

Rabbits for Market.

Rabbits can be grown for the market with almost as much success as fowls. One of the best breeds for raising is the Belgian, as they are hardy and quite large. It does not pay to cultivate the wild class, as they are generally afflicted with tape-worms or other parasites.

Norway is estimated to have 151,900 horses; 1,016,617 cattle; 741,598 being milch cows; 1,686,306 sheep; 101,020 swine, and 96,567 reindeer.



Stable Talk.

Over-crowding animals is the surest way of inviting disease.

Bran comes nearer being a complete stock food than anything else.

Ketch, 2.18, is reported to have gone a quarter of a mile in 32 seconds.

If flies infest the stable scatter some chloride of lime and observe its effect.

Corn silage, with gluten meal and bran, is an excellent ration for feeding beeves.

Recently a mare foaled unattended in a freight car and got along all right. The train was running 30 miles an hour.

A horse's memory is as long as his life, and this makes the lessons he first learns of the utmost importance, as he never forgets them.

For young animals, wheat bran is a good food, as it combines all the elements of hay and corn, and the sugar it contains renders it easily digestible.

Too much attention cannot be paid to horses which are running at pasture, as they are liable to accidents at any time. Look after them every morning and night, and thus be sure of their safety.

The death at Lexington of the stallion Alex. Wilkes, by Sherman Wilkes, adds another to the list of valuable animals lost by Dr. J. A. Sherman, of Lexington, Ky. He has had particularly hard luck, having lost just a few years ago Hector Wilkes, the sire of Fred. S. Wilkes, 2.18.

The United States is credited with having the best blooded stock in the world, and there is no reason why this country should not always hold that honor, considering the careful attention given by the majority of our leading stockmen to the breeding of their animals.

Smartweed can be made of some use. Take a bunch of it and extract all the juice possible. Take the bunch of bruised weed and rub it over the coat of any of the farm animals and they will have 24 hours' respite from the torments of flies. After 24 hours this effect is lost, and the operation should be repeated.

Many cases of prolonged periods of gestation have been reported, and a correspondent of the *American Horse Breeder* reports what appears to be one of the shortest periods. A 16-year-old gray mare, Nellie Gunter, was bred to Sir Walter J., and 10 months and 10 days she dropped a bay filly.

The promising young stallion, Arion, is to be taken by Mr. Charles Marvin, of Meadville, Pa., and trained with a view to enabling him to lower his record. A letter from Gov. Stanford sets forth that, in his opinion, Arion could have beaten 2.10¾ last hear had it not been for the accident which befell him while he was training.

The danger of colliding at the junction of an ordinary kite track has been eliminated in a track built at Kirkwood, Del. Instead of crossing at the finish, the two sides run parallel, preventing all possibility of a collision. In addition to this, the track is literally down hill all the way. The finishing point is just four feet lower than at the start, and in the last quarter there is a pitch of one and one-half feet. The cost of the track was $50,000.

What appears to be a peculiar waste is that of the manure of an immense cattle-feeding establishment which has recently been built at a point about nine miles from Omaha, Neb. This establishment contains 3,750 stalls, with gutters behind them containing running water in which the manure will be carried away to a stream. As three sets of stock, aggregating 11,250 cattle, are to be raised in a year, the loss by this process, taking the common estimate of the value of manure from a milch cow—10 cents per day—will be about $137,000 a year. This would appear to be a rather expensive method of cleaning out a stable, and, it seems pitiable, in the face of undoubted value of manure of this kind, that such a large amount of it should be allowed to go to waste.

Free air, life and exercise in the fields are more conducive to the health of stock than when confined in the stable. According to Bulletin 11, of the station at Utah, stock will never seek shelter except in severe storms, and this natural inclination leads many owners to give up the notion of building barns and places of shelter for them. It has also been found that the animals will eat coarse food out in the fields which they refuse to touch in the barn. Another curious fact is that cattle allowed to roam in the fields gain more by the week than the stabled ones. In the Winter time those that are kept in large, roomy yards, with high, strong wind-breaks, do better even than those in the stables or fields. On the whole, cattle, horses and other farm animals all do better when given fresh air and exercise in the fields. Even horses did better that were turned loose part of the day, and those that were stabled and blanketed night and day did not hold their weight as well as those not covered with blankets. The fact is that all cattle digest and relish their food better in the open air, and the exercise obtained in the fields helps them as much as the food that they eat.

Shoeing Horses.

EDITOR AMERICAN FARMER: I am of the opinion that there are a good many young colts ruined by being shod too early. I am of the opinion that a horse should go barefoot as long as possible. It will improve and strengthen his feet. If a young animal is shod the shoes have a tendency to make the foot brittle and tender, and this may result disastrously in after years. The blacksmith gets the blame for a good deal of the lameness which appears in young animals immediately after they are shod, but while this may be true, I think that in a good many cases the fault lies with the owner in getting the horse shod.

I have seen horses doing excellently which were only half shod. That is, there were shoes on the fore feet, while the hind feet were left unshod. This is somewhat better than having four shoes nailed on.—J. E. C.

The Live-Stock Show.

The Directors of the Columbian Exposition have decided to divide the Live-Stock Show according to the following program: Aug. 21 to Sept. 21, horses and cattle; Sept. 25 to Oct. 14, sheep and swine; Oct. 16 to Oct. 28, fat stock and poultry. Each variety of stock named will be required to be on the ground only during the time assigned for its exhibition. The show will open Aug. 21 with cattle and horses in the barns. Four will be allotted for their exhibition and judging, and on Sept. 21 they will be dismissed and the barns refitted for the reception of the sheep and swine, which must be in their places by Sept. 25, four days after the close of the horse and cattle show. Oct. 14 will end the show of sheep and swine, and two days later the fat stock and poultry will come forward for a 12 days' exhibit.

To Make 100 Pounds of Beef.

In the following table is shown the amount of feed required in different experiment stations to produce 100 pounds increase in live weight with fattening steers:

FOOD REQUIRED FOR 100 POUNDS OF GAIN WITH FATTENING STEERS.

Kansas.		Ontario.	
Cornmeal	1,163 lbs.	Corn	306 lbs.
Cornfodder	239 lbs.	Bran	227 lbs.
		Roots	878 lbs.
		Hay	393 lbs.
Total	1,402 lbs.	Total	1,804 lbs.

It will be seen that from 1,400 to nearly 1,900 pounds of organized vegetable material are required to produce 100 pounds of gain live weight with steers, not over 60 per cent. of which can be recovered as dressed meat.—*Prof. W. A. Henry.*

Beef or Milk?

A Short-horn dam, for instance, of the absolute beefing type will produce a calf possessing early-maturing properties in a more marked degree than a Short-horn dam of the dairy type; hence, for absolute flesh-making in the offspring the fleshy type of dams will best answer the purpose. The inference then is plain that in my view the dairy type of Short-horn in England will not produce a calf that will mature quite so readily nor feed quite so easily as the purely-beefing type.—*Prof. Thos. Shaw.*

There is no yearling steer in the United States east of the Mississippi that will sell for enough money or that is worth enough to pay for the food he has consumed and the keep of his dam a year. If we are to grow beef at all in this section it must be from the produce of cows that pay their own way in dairy products. If the two qualities cannot be combined in a high degree in the same breed we are put in this anomalous position: that to make meat-production successful we must have bulls of one character and cows of another.—*J. McLain Smith.*

Pen Notes.

It is best to change the boar every year.

It is best to have pigs dropped as early in April as possible.

Feed brood sows more potatoes and oats and less corn than pork hogs.

A sow with long body and broad, deep sides is the best for breeding.

A bushel of corn should be made to average from 13 to 15 pounds of pork.

Soured food causes indigestion, scours, etc., in pigs. Give them good, sweet food.

There is no excuse for raising runts and scrubs. There are plenty of good hogs in the country to breed from.

If a sow is pregnant, do not give her an entirely corn ration, but vary it, allowing corn to form part of the feed.

Clover, blue grass, shorts, peas, oats, and skim milk contain quite an amount of ash and muscle-forming elements.

It is best to let pigs wean themselves, which they will begin to do at the third month if supplied with appetizing food.

Soaking corn 24 hours reduces the work that has to be done in a hog's stomach and enables him to put on flesh easier.

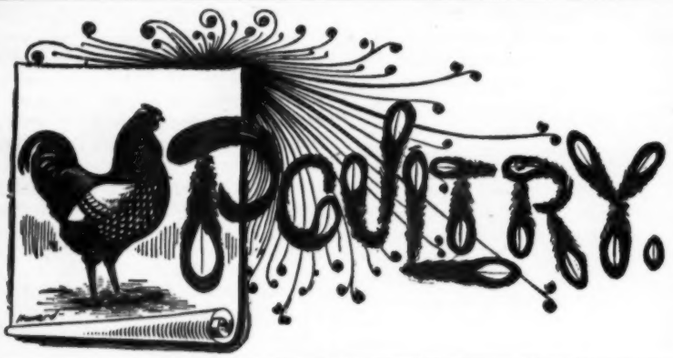
The first 200 pounds is much the cheapest pork to grow, and it should be made within 11 months from birth and within five months from beginning of fattening.

Corncobs can be turned to better advantage than by being thrown on the manure pile. If they are charred they form valuable additions to the material which composes the bones.

It was found at the Wisconsin station that by feeding bones the strength of the thigh bones could be doubled, and that hardwood ashes nearly doubles the strength of the bones.

Corn is a fattening food. There is no doubt of this. The only trouble is that corn does not supply all the elements which build up the animal structure. It may be well to feed corn entirely to hogs that are being prepared for market, but it is a great mistake to give the same ration to growing animals.

A new industry in Mexico, and one which is apt to become of great importance, is that of raising sisal grass, so named from the port of Sisal, in Yucatan. It can be used for various purposes, and ropes and cords of almost any description can be made from it. It grows in long, narrow blades, which, when dry, curl up and form a flexible string.



Cacklings.

Let the fowls run over the stubble in the wheat or oat field.

Ducks are fast growers, and can be gotten ready for market in a good less time than it takes to get a chicken.

Care should be taken not to confine ducks or geese in wet quarters, as they are very apt to become droopy and lame.

The poultry can secure enough insects and other animal food during this season of the year, so it is not necessary to feed them meat scrapes.

As eggs are comparatively cheap now, it is probably well to force the hens to molt, so that they will be ready for laying in the early Fall.

Oyster shells do not furnish the grit necessary to grind the food of the chicken. They are too soft for the purpose required of them. Have plenty of sharp-pointed gravel or stones in reach of the fowls in addition to the oyster shells.

A Gape Worm Extractor.

Dr. Wm. Hallowell, Davisville, Pa., manufactures a silver gape worm extractor, which seems to have given great satisfaction to all who have used it. The extractor is a simple instrument, and is made of fine silver wire, about six inches long, at one end of which are looped a number of horse hairs. The extractors are sold at 10 cents each, or three for 25 cents.

A Sight of "Sees."

See that your fowls have plenty of room in the poultry house.

See that the house is cleaned regularly.

See that plenty of absorbents are spread on the floor.

See that the old nests are burned when new ones are substituted.

See that your house has proper ventilation.

See that the fowls are fed regularly.

See that they have a variety of food.

See that the house is as liceless as possible, if not entirely so.

See that sickness among the fowls is checked.

See that the fowls have plenty of green food.

See that there is an abundance of water.

See that the fowls have careful attention, and they will—

See that your egg basket is never empty.

THE BOY'S FANCY.

Cherish and Cultivate it for the Boys' Sake.

EDITOR AMERICAN FARMER: The boy fancier and his fancy make one of our cherished institutions—an institution teaching patience, gentleness, punctuality, and, above all, humanity. The more of these institutions we have throughout the land the more humane will be the treatment of dumb creatures, the less will marksmen test their skill by shooting pigeons, and the less will sheep and cattle suffer in transit, for a boy who has ministered to the welfare of pets of any kind never becomes as man thoughtless of the comfort of dumb animals, but rather an earnest advocate in their behalf.

A car load of sheep was standing on a siding. One of the sheep, caught between the iron rods of the door of the car, had been terribly injured. A boy seeing the sheep, burst into tears and exclaimed: "That looks just like my Cosset!" The memory of that Cosset will go with the boy through life, and if he have anything to do with railways, or with the making of laws for the transportation of animals, the Cosset will be ever before him.

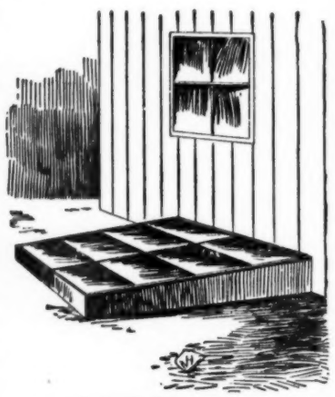
The boy's fancy, whether it turn to pigeons, rabbits, white mice, guinea pigs, or poultry, should be encouraged in every family, for it teaches what ought to be a part of every boy's education. The poultry fancy has a strong hold upon the boys who turn to pets, and naturally bantams are the favorite variety. Bantams are distinctively boys' pets, and under proper care are not only entertaining, but also productive of eggs and spending money.

However rich a boy may be, he takes especial delight in spending money of his own getting. The sense of proprietorship makes boys more manly and men more independent. Now, whether bantams or larger fowl claim attention, the object is profit—profit in entertainment and experience, and profit in money. Business principles govern even if the enterprise be undertaken for pleasure.

There is no pleasure in keeping fowls that pay no attention to the handsome China egg which is given for a pattern, in keeping fowls that only cluck and crow and scratch, and make bills at the grain store. Eggs are plenty in May and June, but they are more desired in the early months, when they are worth more for the table or brooding. Hens will lay in January as well as in May if they have what they have in May, namely, warmth, exercise, green and animal food and cleanliness.

All these they may have in January, not so full and complete, perhaps as in May, but near enough for the purpose—the production of eggs. Near the coop dig a pit in the ground 15 inches deep, three feet wide, and seven feet long. Make a frame of rough boards to fit into the pit—to make its walls and to keep the earth from caving into the pit—the top of the frame being three inches above the level of the ground. The end next to the coop should be an inch or two higher than the other end to allow the rain to drain off.

A piece of joist is placed crossways midway of the frame to prevent the earth from pressing in the sides, and to allow hard packing of the earth on the outside nearly to the top of the frame. On the frame is placed an ordinary gardener's sash, six feet by three. The pit and frame is seven feet long, the sash covers six feet of it, leaving an opening at the upper or higher end one foot by three.



THE WINTER PASTURE.

Over this opening is placed one side or end of the coop, removing a part of the bottom of the coop to correspond to the opening in the frame of the pit. Through this opening the occupants have access directly from the coop. The pit or bed should be dug just before the ground freezes, banked hard with earth on the outside. The bottom of the bed should be made soft by spading, and enriched by fertilizers. Fill the bed with leaves, put on the sash and leave till wanted, of course keeping the fowls out of it till cold weather comes.

A few days before it is to be opened, remove the leaves and sow barley or wheat. If the frame be in a protected place with southern or eastern exposure, the earth will freeze very little in the bed, provided a blanket be spread over the sash at night. The gardener's straw mat will do, but tarred paper is much cheaper, and is as good, laid crossways in strips on the sash as shingles are laid on a roof, and weighed down to keep in place.

Keep the earth in the bed moist, and when the grain begins to sprout and to send forth green shoots, the chick's table is spread, and they may be admitted to the feast. The frame is large enough for a dozen bantams, or half dozen other fowls. Of course the big Brahma cock that can eat from the top of a flour barrel (also the contents of the barrel in a short time), could not stretch himself under the sash, but he and his companions could scratch and dust.

If the fowls be bantams or some of the smaller fowls of the larger breeds, the frame may be divided lengthwise by a board partition. After the green food is eaten in one run, let the chicks into the other, and thus sow and plant alternately through the Winter. When the fowls are to be admitted to the run—to the green pasture—choose a cold day when the sun shines. It is like witnessing the rush of hungry children to a dinner table. How they talk and sing in the "cluck" language! How many "Ah's" and "Oh's" the fancier imagines he hears as they seize the green food, and how soon the sprouting grain disappears, and how quickly the dust begins to fly!

Change food often, and give as great variety as possible. Cracked corn is good, but must be fed sparingly, as it is heating and fattening, and tends to apoplexy. The scraps from the table are dainty morsels. Give wheat or barley, and occasionally a little buckwheat, but not much, as it is laxative. Beef scraps may be used in small quantities. Get bones from the butcher, and after the fowls have stripped them of meat, burn or char them, make fine, and place with oyster shell chips where the fowls can help themselves.

If the frame be used for a run, and no green food be provided, cut good hay into inch lengths and steam. Keep the coop clean. Have at hand a bucket of whitewash, and use it often on the interior. For the under part or cushion of the nest, use tobacco stems. If these rules be followed, if the comfort of the flock be studied, there will be full reward in healthful fowls and many eggs even in the Winter months.—JULIA ALLYN, Providence, R. I.

The Difference of Food.

It is well nigh impossible to feed a hen for eggs and at the same time for the production of flesh. A dairyman cannot feed a cow for milk and beef at the same time. For the production of milk it requires one kind of food, and for beef another kind. So it is with poultry. If hens are kept for egg purposes they should be fed with food which abounds in material that can be readily converted into the parts which compose an egg. If they are fed for the production of flesh, they should be fed flesh-forming foods.

A hen is bound to lay while laying on flesh, but the eggs are so few that there would be but very little profit, if any at all, in them. The amount of flesh which is gained is what is important, not the quantity of eggs. We all know that when a hen acquires a certain amount of fat she will not lay. Men who have been successful in poultry raising would no more think of feeding flesh-forming foods to their laying hens than they would of chopping off a hen's leg for her head. Neither would they feed food productive for egg-laying to the chickens which they are raising for market. Surely the amateur cannot make a success of what the successful poultry raiser has found to be a failure.

New South Wales reports the destruction of 20,000,000 rabbits last year.

FARMERS IN COUNCIL.

Spring Meeting of the Pennsylvania State Board of Agriculture.

Commencing at Harrisburg and running southward through Pennsylvania, then across Maryland and beyond the Potomac into West Virginia and away onward to Staunton, Va., lies one of the finest valleys for agricultural purposes in all our land. It is the Cumberland Valley of Pennsylvania, and the Shenandoah Valley of Virginia and West Virginia. In "Barbara Fritchie," Whittier spoke of it, "Fair as a garden of the Lord, * * * green-walled by the hills of Maryland." Within its limits are Gettysburg, Antietam, Harper's Ferry, Cedar Creek, and other names familiar to many of us near 30 years ago, and on whose fields up and down marched and countermarched alternately those who wore the blue and those who wore the gray. Over its limestone "pikes" then rumbled the artillery and the baggage trains of war, or clattered the wild races of cavalry on their raids. Here Sheridan rode—and "saved the day"—toward "Winchester 20 miles away." The Valley was beautiful then to the soldier; it is beautiful now in these days of peace. Its rich limestone soil grows wheat, corn, tobacco, cattle, and sheep. Its "orchards and cornfields fruited deep," are delightful to look upon these June days, and its farmers whose lines are cast in such pleasant places reap more than the average reward for their toil. Within a few years along the sides of its hills, and even high up on the ridges of its encircling mountains, large peach orchards have been planted, and hundreds of thousands of trees are this season laden with a bounteous crop that later along will gladden the hearts of producer and consumer as well.

It was in this Valley, at Greencastle, Franklin County, Pa., not far from the Maryland line, that the regular Spring meeting of the Pennsylvania State Board of Agriculture and a General Farmers' Institute was held June 8 and 9. Under the direction of Secretary Thos. J. Edge and D. Z. Shook, local member of the board, the arrangements were complete in all their details, and one of the largest and best meetings ever held by the board was added to its long list of successes.

Gov. Pattison, who ever takes an active interest in the progressive agriculture of the State, was present and presided at the meeting. Forty-six Counties were represented by members of the Board, and visiting farmers and others by the hundred were present and filled the large town hall more than full, so that standing-room in the aisles could alone be provided for some.

The village was gaily decorated with flags and streamers, and when the Governor arrived he was met by the burgers and a band of music, and a procession formed and marched to the hall. The program presented a variety of subjects, and gave token of the active interest and great educational advantages of their Institute to the farmers of the State. Interspersed among the papers read and speeches made was vocal and instrumental music.

Among the matters discussed were the Metric System of Weights and Measures; Pure Food; Soil in Agriculture; Corn Culture, and the Phenomena of Plant Life. The interests of the farmer outside of his farm were not forgotten, and good practical thoughts and suggestions were made in papers entitled: Why the Farmer Should Interest Himself in Politics; The Farmer the Nation's Greatest Factor; The Relations of Agriculture to Society, etc. Other subjects that were illustrated with experiments, drawings, maps, etc., were: The Application of the Microscope to the Study of the Science of Agriculture; What Electricity Has Done for the Farmer and What It Promises to Do, and Farmers and the Weather.

Such meetings are making farm life more attractive and more profitable, and the go-ahead farmer appreciates them more and more.—MORTIMER WHITEHEAD.

Will Tea Grow in the South?

Some years ago Gen. Le Duc, then Commissioner of Agriculture, made an attempt to grow tea in North and South Carolina, but his notions were so ridiculed by his friends that his plans were not completed.

Quite lately, however, at a meeting of the South Carolina Agricultural Society, Prof. W. F. Massey showed a package of tea which was grown and dried in North Carolina, and, moreover, an expert stated that this same tea would be worth $1 a pound, wholesale, in China. Mr. Massey thinks tea can be made a commercial success in the South. It is certainly hardy enough, and labor is better there than in India.

The manager of Gen. Le Duc's experiments was for 18 years a tea-raiser in Assam, and he said that tea could be raised in the Carolinas for from 15 to 20 cents a pound.

It would, at least, do no harm to try tea-raising, and, if we succeed, it will add one more item to the endless list of products which our country can grow for herself.

Buried Butter.

Salt was a very scarce commodity in Ireland in the days of long ago, and many of the foods were eaten saltless. Butter was very seldom salted, and to preserve it the Irish buried it in bogs. At the present time peasants working in the bogs digging peat have unearthed quantities of this bog butter, as it is called, and some of it is on exhibition in the Irish museums. Some of the butter has been discovered in quite large quantities in wooden cases and irregular packages, protected by moss and linen, ranging from 30, 40, and more pounds in weight. The depth at which the butter was found varies, in some cases it being 10, 16, and even 18 feet below the surface of the ground. A chemical analysis has proven that it is butter. The wonder is at what period was the butter buried. The descendants of the Emerald Isle do not have any knowledge of traditions of any of their forefathers employing this method of preserving butter, and as no absolute data exists by which the average increase of bog soil may be calculated, the time at which this practice of burying butter was in vogue is in doubt.

Record of Transfers of Pure-bred American Southdown Stock.

Riverdale Lass, 1552—S. E. Prather, Springfield, Ill., to E. E. Davis, Rono, Ind.

Rose, 780—L. M. Crothers, Crothers, Pa., to W. U. Noble, Brecksville, O.

Clay Ewe "228," 2730, and Clay Ewe "335," 2770—Sidney P. Clay, Lexington, Ky., to John Fischter, Maysville, Ky.

Alexander Ewe "1078," 2392; Alexander Ewe "1036," 3389, and Alexander Ewe "1028," 3386—A. J. Alexander, Spring Station, Ky., to H. A. Frease, Stoutsville, O.

Clay Ewe "220," 2723, and Clay Ewe "226," 2728—G. J. Hagerty & Sons, Hanover, O., to John A. Irion, Gallipolis, O.

Minnie, 3981; Lucy, 3980; Fannie, 3979, and Lady II., 3600—Geo. Baker & Sons, Simcoe, Ont., Can., to A. M. Kent, Jamestown, N. Y.

Proud, 4009; Enigma, 4002; Dainty, 3998, and Ash Leaf, 3992—N. R. Boutelle, Waterville, Me., to Charles French, Solon, Me.

Model VII., 3060, and Model IX., 3062—Uriah Privett & Bro., Greensburg, Ind., to Washington Akester, Washington, Ind.

Minnie, 2679; Martha, 2677, and Mary, 2678—W. A. Jones, Brandon, Wis., to G. W. Groesbeck, Elkhorn, Wis.

Nebula, 1798, and Ninah, 2477—John Wentworth, Chicago, Ill., to Geo. McKerrow, Sussex, Wis.

Guinivir VI., 1520; Guinivir V., 1502; Geraldine III., 1503, and Guinivir IV., 1519—D. W. Smith, Bates, Ill., to S. E. Prather, Springfield, Ill.

Goldie II., 4910, and Fairlight, 4909—H. A. S. Hamilton, Fisherville, Va., to T. P. Hamilton, Auxvasse, Mo.

Tallula Lass IV., 954, and Tallula Lady IV., 971—Arthur H. Upson, Warsaw, Ind., to E. H. Upson, Wilmot, Ind.

Webb Ewe "2," 2925—John Jackson & Sons, Abingdon, Ont., Can., to Wm. A. McCoy, Mercer, Pa.

Allright 1267—Geo. Eiselstein, Pomeroy, O., to Elmer Harper, Pomeroy, O.

Walnut III., 4224; Walnut II., 4223; Raisin II., 4222, and Fig. IV., 4221—H. E. Alvord, Amherst, Mass., to Massachusetts Agricultural College, Amherst, Mass.

Davenport II., 292; Fannie 411, and Beauty III., 1929—L. M. Crothers, Crothers, Pa., to Ross Sproat, Waynesburg, Pa.

Pearl, 4244—H. E. Alvord to Wm. H. Caldwell, Agricultural College, Mass.

J. A. I. ewe "27," 4883; J. A. I. ewe "31," 4384, and J. A. I. ewe "28," 4325—W. U. Noble, Brecksville, O., to E. W. Snyder, Tollgate, W. Va.

J. C. S. "3," 4743—G. J. Hagerty & Sons, Hanover, O., to George Copland, Dresden, O.

Baron Audley, 2626—S. E. Prather, Springfield, Ill., to P. H. Boothroyd, Arkine, Col.

Bolster, 3056—Thomas Beer, Bucyrus, O., to Frederick Kuenzli, Upper Sandusky, O.

Brummel "5," 3299—Geo. Baker & Sons, Simcoe, Ont., Can., to A. M. Kent, Jamestown, N. Y.

Carlisle, 2594—Geo. McKerrow, Sussex, Wis., to Bernard, Kirk, Ohio, Ill.

Cato, 3052—Levi P. Morton, Rhinecliff, N. Y., to Alfred Birnie, Springfield, Mass.

Champion, 1516—John Jackson & Sons, Abingdon, Ont., Can., to Arthur Simenton & Sons, Blackheath, Ont., Can.

Clay "330," 3899; Clay "331," 3900; Clay "332," 3901, and Clay "333," 3902—S. P. Clay, Lexington, Ky., to J. H. Aylor, Gunpowder, Ky.

Corporal Trim 3104—John Hobart Warren, Hoosick Falls, N. Y., to N. R. Boutelle, Waterville, Me.

Prather's Miss Lyle, 627—S. E. Prather, Springfield, Ill., to E. E. Davis, Rono, Ind.

Clay Ewe "219," 2722; Clay Ewe "220," 2723, and Clay Ewe "224," 2727—Sidney P. Clay, Lexington, Ky., to G. J. Hagerty & Sons, Hanover, O.

Model III, 2140, and Mattie II, 1824—Uriah Privett & Bro., Greensburg, Ind, to Clemons & Booth, Hillsboro, Mo.

Model, 2138, and Model II, 2139—Uriah Privett & Bro., to T. G. Rook, Salem, Ia.

Royal Coleman B IV, 3598; Princess 3522, and Jonas Ewe "6A," 2953—Geo. Baker & Sons, Simcoe, Ont., Can., to A. M. Kent, Jamestown, N. Y.

G. J. H. Ewe "261," 2270; G. J. H. Ewe "245," 2269, and Graddy Ewe "72," 2134—G. J. Hagerty & Sons, Hanover, O., to J. M. Leonard, West Unity, O.

Rose, 1967; Miss Lyle III, 625, and Miss Lyle IV, 626—Stericker Bros., Springfield, Ill., to S. E. Prather, Springfield, Ill.

Portia, 1375; Princess, 2478, and Prize 2479—John Wentworth, Chicago, Ill., to Geo. McKerrow, Sussex, Wis.

Rose III, 1918—L. M. Crothers, Crothers, Pa., to D. W. Evans, Venedocia, O.

Jonas Ewe "43," 1687, and H. S. T. Ewe "8," 3201—G. J. Hagerty & Sons to John A. Irion, Gallipolis, O.

H. S. T. Ewe "19," 3207—G. J. Hagerty & Sons to Samuel Gillespie, Mt. Auburn, O.

Clay Ewe "358," 2743—Sidney P. Clay to John Fischter, Maysville, Ky.

Hebe III, 942; Geraldine II, 1522, and Guinivir II, 1527—D. W. Smith, Bates, Ill., to S. E. Prather, Springfield, Ill.—S. E. PRATHER, Secretary, Springfield, Ill.

Green Food.

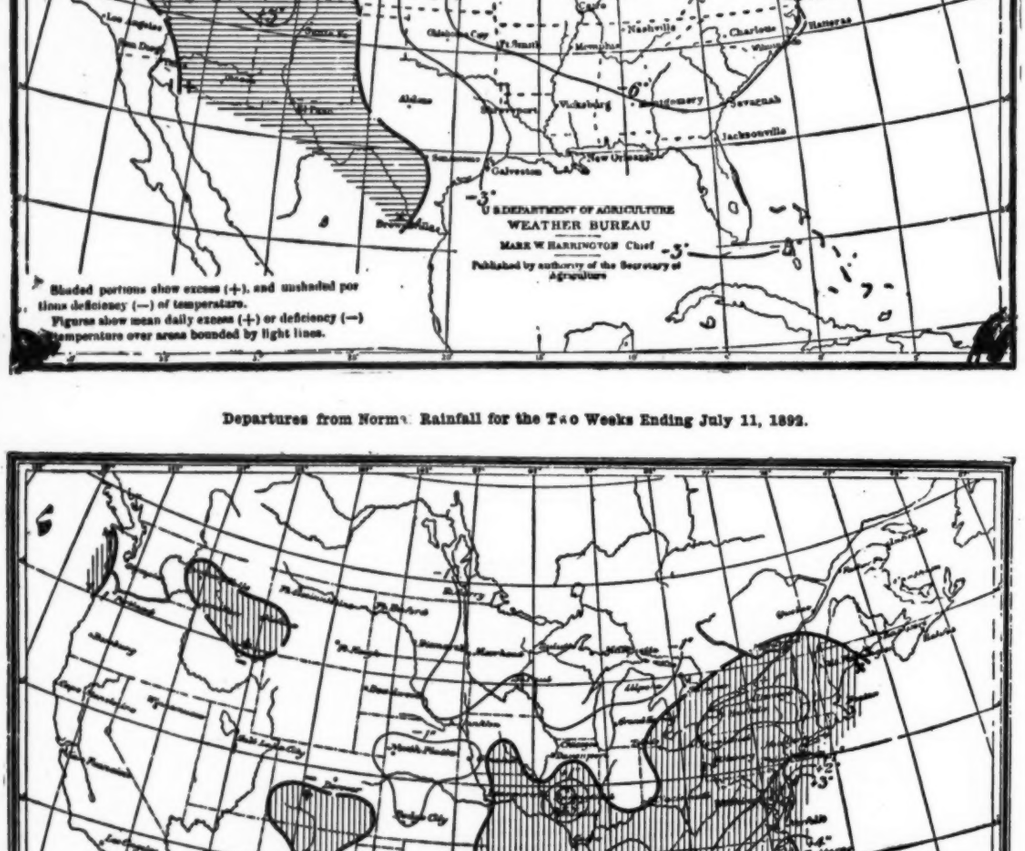
The amount of green food that can be grown on an acre, should the soiling system be practiced, is given by Prof. Wilson, who experimented in that direction, as follows: Peas, cut green, 13.5 tons; peas and oats, grown together, cut green, 24 tons; green corn, 33.6 tons, and the second cut of green clover, 3.1 tons. It is not necessary to cut green food oftener than twice a week if it is spread out, in order to avoid its heating.—*Western Rural and American Stockman.*

A carload of fresh salmon is sent from British Columbia to New York each week in a refrigerator car. The supply of these fish at the first-named place is almost unlimited, and the industry of shipping them fresh to Eastern cities bids fair to become extensive.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

Weather-Crop Bulletin for the Two Weeks Ending July 11, 1892.

Departures from Normal Temperature for the Two Weeks Ending July 11, 1892


U.S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
MARK W HARRINGTON Chief
Published by authority of the Secretary of Agriculture
Shaded portions show excess (+), and unshaded portions deficiency (—) of temperature.
Figures show mean daily excess (+) or deficiency (—) of temperature over areas bounded by light lines.

Departures from Normal Rainfall for the Two Weeks Ending July 11, 1892.

U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
MARK W. HARRINGTON, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 7 A. M. and 7 P. M., 75th Meridian time.
Shaded portions show excess (+), and unshaded portions deficiency (—) in rainfall.
Figures show, in inches, amount of excess or deficiency of rainfall over areas bounded by light lines.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
WASHINGTON, D. C., July 15, 1892.

TEMPERATURE.

During the two weeks ending with July 11, 1892, unusually cool weather has prevailed generally throughout all districts east of the Rocky Mountains. The greatest deficiency in temperature occurred from Iowa, Missouri, and Arkansas eastward to the Atlantic Coast, over which region the daily temperatures averaged from six degrees to nine degrees below the normal. In the northern portion of the Upper Lake Region and on the Pacific coast about the normal temperature conditions have prevailed, while in the Rocky Mountains and plateau districts it was slightly warmer than usual.

RAINFALL.

Except in Florida, the Upper Mississippi Valley, and Upper Lake Region, the rainfall during the two weeks ending July 11, 1892, has exceeded the average in all districts east of the Mississippi River. It has also been excessive in central and southern Iowa, and thence southward over Missouri, Arkansas, and Louisiana to the Gulf Coast. Exceptionally heavy rains fell over the greater portion of the South Atlantic and East Gulf States, causing damage to crops and resulting in destructive local freshets in portions of Georgia, Alabama, and Mississippi. Over a large portion of the South Atlantic and East Gulf States from two to five inches more than the average amount of rain fell, the actual rainfall at numerous stations exceeding six inches. In the Upper Lake Region, Upper Mississippi Valley, and in Texas less than the usual amount of rain has fallen, and over portions of Michigan, Wisconsin, and Minnesota the dificiency amounts to more than one inch.

BUREAU OF INFORMATION.

B. G. Hughes, Ouray, Colo.—By recent agreement between the United States and Canada the rate of postage on seeds, cuttings, plants, roots, and cions has been raised from 1 cent for two ounces to 1 cent per ounce. The postage must be paid in full.

J. F. McNary, Frankfort, Ky.—The largest steamship in active service is the Furst Bismarck, of the Hamburg-American line; its tonnage is 12,000, but it is surpassed in length by several vessels. The Teutonic and the Majestic are 582 feet long, and the latter has a tonnage of 9,861, making it the second largest vessel afloat.

A. T. McMahan, Marietta, O.—The New York Crystal Palace was burned Tuesday, Oct. 5, 1858.

H. G. Funk, Ossawottamie, Kan.—There are 444 votes in the electoral college this year, which will make it necessary for the successful candidate to get 223. We are not a political prophet, and have nothing to say as to the chances of either candidates getting this number. That is the special province of the political papers.

Benj. W. Carnter, Rome, Ga.—For ants on the lawn, a spoonful of Paris green cut with alcohol and made into sirup with sugar and water can be placed on pieces of glass or crockery. Cover from domestic pets, and the slaughter will be satisfactory.

A firm in New Berne, N. C., recently shipped $30,000 worth of cabbages to Eastern cities. The trucking industry in this section of the country is improving, and gives employment to thousands and thousands of laborers.

THE MARKETS.

NEW YORK, Wednesday, July 14, 1892.

Butter.—The market was generally steady today. State dairy is scarce, and is held with confidence. Creamery is steady. Western dairy is rather quiet. There is not much demand for fresh factory, but prices were maintained. We quote:

State dairy, half-firkin tubs, fancy, per pound	19½a20
State dairy, half-firkin tubs, good to choice, per pound	18 a19
State dairy, half-firkin tubs, fair to good, per pound	17 a18
Welsh tubs, fancy, per pound	17 a18
Welsh tubs, good to choice, per pound	15 a16
Eastern creamery, fancy, per pound	20½a21
Eastern creamery, choice, per pound	19 a19½
Eastern creamery, fair to good, per pound	17 a18
Elgin creamery, fancy, per pound	.. a21
Pennsylvania creamery, fancy, per pound	.. a21
Western creamery, fancy, per pound	20½a21
Western creamery, choice, per pound	19 a19½
Western creamery, new, fair to good, per pound	17 a18
Western dairy, new, choice, per pound	16 a..
Western dairy, new, good, per pound	14 a15
Imitation creamery, fancy, per pound	17½a18
Imitation creamery, good to choice, per pound	16 a17
Imitation creamery, fair to good, per pound	15 a16
Factory, fresh, choice, per pound	15 a15½
Factory, fresh, medium to good, per pound	13 a14

Beans and Peas.—The receipts of beans for the last six days were 4,763 barrels, and of peas, 1,821 barrels. Beans are not plentiful, but prices are easy. Green peas are scarce and firm. We quote:

Beans, marrow, choice	$2 10 a ....
Beans, marrow, poor to fair	1 50 a 2 00
Beans, medium, choice	1 77½a 1 80
Beans, pea, choice	1 77½a 1 80
Beans, red kidney, choice	2 30 a 2 40
Beans, red kidney, poor to fair	1 50 a 2 00
Beans, white kidney, choice	2 40 a 2 50
Beans, yellow eye, choice	1 65 a 1 75
Lima beans, California, per 60 pounds	1 65 a 1 75
Green peas, barrels, per bushel	1 65 a ....
Green peas, bags, per bushel	1 60 a ....
Green peas, Scotch, per bushel	1 70 a ....

Cheese.—The receipts of cheese have been large, but holders are quite confident. The quotations from Liverpool to-day, as reported by cable, are 43s, 6d@44s, and a rather weak market. We quote:

State factory, new, fancy, white, per pound	..a8½
State factory, new, fancy, colored, per pound	..a8¼
State factory, new, full cream, choice, per pound	8 a8½
State factory, new, fair to prime, per pound	7½a7¾
State factory, part skims, choice, per pound	5 a6
State factory, part skims, fair to good, per pound	3 a4
State factory, full skims, per pound	1½a2½

Dried Fruits and Nuts.—Evaporated apples are scarce and quite firm. Cherries are firmer. Peanuts are easy.

Apples, evaporated, fancy, per pound	6¾a 7
Apples, evaporated, choice, per pound	6¼a 6½
Apples, evaporated, ordinary to good, per pound	4 a 6
Apples, sun-dried, per pound	3 a 3½
Raspberries, evaporated, per pound	18 a18½
Raspberries, sun-dried, per pound	17 a...
Cherries, per pound	11 a12
Blackberries, per pound	2½a 3
Huckleberries, per pound	9 a10
Apricots, California, in boxes, per pound	10 a12
Apricots, California, in bags, per pound	9 a11
Peanuts, fancy, per pound	4½a 4½
Peanuts, prime, per pound	3 a...
Peanuts, farmers' grades, per pound	2½a 3½
Peanuts, shelled, per pound	2 a 4
Peanuts, shelled, Spanish, per pound	3½a 5½

Eggs.—The receipts of eggs during the past week were not large, and the feeling in the market to-day was one of confidence, notwithstanding the warm weather.

Eastern, choice, loss off, per dozen	17½a18
Western, choice, loss off, per dozen	16½a17
Western, good, loss off, per dozen	16½a16½
Western, medium, loss off, per dozen	15 a16

Fresh Fruits.—Choice apples are in good demand and readily fetch top prices. Strawberries are scarce and choice qualities meet with ready sales. Blackberries are plentiful and prices are easy. There is a large supply of raspberries, and prices have declined. Prime huckleberries are in good demand. There is a good demand for currants. The receipts of peaches have been large and the demand is good. Pears are more plentiful and are easier. Pineapples are steady. Prime muskmelons are scarce and poor qualities are dull. Watermelons are easier.

Apples, Southern, Astrachan, new, per bushel, crate	$1 50a$2 00
Apples, Southern, green, per crate	75a 1 25
Apples, Southern, green, per half barrel, crate	1 00a 1 50
Strawberries, western New York, per quart	5a 10
Blackberries, Maryland, Early Harvest, per quart	4a 6
Blackberries, Delaware and Maryland, Wilson, per quart	8a 10
Blackberries, New Jersey, Wilson, per quart	9a 11
Blackberries, New Jersey, small, per quart	5a 7
Currants, cherry, per quart	8a 9
Currants, cherry, per pound	6a 7
Currants, small, per pound	a 6
Raspberries, up-river, red, choice, per cup	4a 5
Raspberries, up-river, small, per cup	2a 4
Raspberries, New Jersey, red, per pint	2½a 5
Raspberries, New Jersey, black cap, per pint	2a 4
Huckleberries, New Jersey, per quart	8a 12
Huckleberries, New Jersey, per box	75a 1 00
Huckleberries, Shawangunk Mountain, per box	1 25a ....
Huckleberries, Pennsylvania, per basket	60a 70
Huckleberries, Pennsylvania and Mountain, per quart	10a 12
Huckleberries, Maryland, per quart	6a 10
Peaches, Georgia, St. John, per case	2 00a 3 00
Peaches, Georgia, Early Rivers, choice, per case	1 50a 2 00
Peaches, Georgia, Tillotson, per case	50a 1 50
Peaches, Georgia, Amelia, per case	2 75a 3 50
Peaches, Georgia, Mount Rose, per case	2 75a 3 50
Peaches, Georgia, Thurber, per case	2 50a 3 25
Peaches, Georgia, Belle of Georgia per case	2 50a 3 00
Peaches, Georgia, Crawford, per case	2 75a 3 25
Peaches, Delaware and Maryland, Hale, per crate	50a 1 25
Peaches, Delaware and Maryland, Hale, per basket	25a 75
Peaches, North Carolina and South Carolina, per crate	1 00a 2 00
Plums, Delaware and Maryland, Wildgoose, per quart	8a 10
Plums, North Carolina, per crate	1 00a 1 25
Plums, North Carolina, Wildgoose, per 10-pound basket	75a ....
Pears, Georgia, Le Conte, choice, per barrel	5 00a 6 00
Pears, Georgia, Le Conte, poor to good, per barrel	3 00a 4 00
Pears, Georgia, Le Conte, fancy, per crate	1 00a 1 50
Gooseberries, green, per quart	5a 7
Pineapples, Florida, 50 to 60 in crate, per 100	10 00a12 00
Pineapples, Florida, 70 to 80 in crate, per 100	5 00a 7 00
Muskmelons, Charleston, per basket	50a 1 00
Muskmelons, Charleston, poor to good, per barrel	50a 1 50
Muskmelons, North Carolina, per barrel	1 00a 1 50
Watermelons, Southern, large, per 100	20 00a22 00
Watermelons, Southern, medium, per 100	12 00a18 00
Watermelons, Southern, small, per 100	7 00a10 00

Hay and Straw.—Hay is dull, except for prime grades, which are steady. New hay will soon be in the market. Straw is quiet.

Hay, No. 1, per 100 pounds	..a85
Hay, No. 2, per 100 pounds	..a75
Hay, clover, per 100 pounds	..a60
Hay, clover mixed, per 100 pounds	..a65
Hay, shipping, per 100 pounds	65a70
Hay, salt, per 100 pounds	..a55
Long rye straw, per 100 pounds	55a..
Short rye straw, per 100 pounds	40a45
Oat straw, per 100 pounds	45a55
Wheat straw, per 100 pounds	..a40

Poultry and Game.—Live geese and ducks are steady. Live chickens are in good demand and firmer. Live fowls are steady, but live turkeys are weak. In the market for dressed poultry Spring chickens are firm for choice. Fowls are steady, and prime turkeys are firm. Choice Eastern Spring ducks are steady, but Western Spring ducks are rather quiet. Tame squabs are rather quiet.

LIVE POULTRY.

Geese, Western, per pair	$1 25 a$1 37
Geese, Southern, per pair	1 12 a .....
Turkeys, per pound	10 a 15
Ducks, Eastern, per pair	70 a 75
Ducks, Western, per pair	60 a 75
Ducks, Southern, per pair	55 a 60
Chickens, Spring, large, per pound	19 a 21
Chickens, Spring, medium, per pound	16 a 18
Chickens Spring, small, per pound	15 a 16
Fowls, State, New Jersey and Pennsylvania, per pound	14 a ...
Fowls, Western, per pound	.. a 14
Fowls, Southern, per pound	13½a 14
Roosters, mixed, per pound	8 a 8½

DRESSED POULTRY.

Chickens, Philadelphia, broilers, three to three and a half pounds per pair, per pound	21 a22
Chickens, Philadelphia, mixed weights, per pound	18 a20
Chickens, Western, broilers, dry-picked, large, choice, per pound	19 a..
Chickens, Western, broilers, dry-picked, mixed weights, per pound	16 a18
Chickens, Western, broilers, scalded, large, per pound	18 a..
Chickens, Western, broilers, scalded, mixed weights, per pound	16 a18
Chickens, Western, broilers, scalded, small, per pound	a15
Fowls, Western, dry-picked, per pound	12 a12½
Fowls, Western, scalded, per pound	11½a..
Fowls, Western, poor to fair, per pound	10 a11
Old roosters, per pound	a 4
Turkeys, mixed weights, per pound	13 a14
Turkeys, inferior, per pound	11 a12
Ducks, Spring, Eastern, per pound	20 a21
Ducks, Spring, Long Island, per pound	a20
Ducks, Spring, Western, per pound	10 a13
Geese, Spring, Eastern, per pound	19 a20

GAME.

Tame squabs, white, per dozen	$2 50a$2 75
Tame squabs, dark, per dozen	1 50a 1 75
Live pigeons, per pair	30a 40

Vegetables—The market for potatoes was quiet to-day. Onions are rather scarce and are firmer. Cabbage is easier. Prime tomatoes are steady, but poor qualities are neglected. Most of the eggplant on hand is of poor quality. Squash is dull. There is a good demand for asparagus. String beans and green peas are steady. Beets and green corn are steady.

Potatoes, North Carolina, Rose, prime, per barrel	$1 50a$1 75
Potatoes, North Carolina, Chile red, prime, per barrel	1 25a 1 50
Potatoes, Norfolk, Rose, prime, per barrel	$1 50a 1 75
Potatoes, Norfolk, Chile red, per barrel	1 25a 1 50
Potatoes, Southern, seconds, per parrel	75a 1 00
Potatoes, Southern, culls, per barrel	40a 60
Potatoes, Eastern Shore, Rose, prime, per barrel	1 50 a1 62
Potatoes, Eastern Shore, Chile red, prime, per barrel	1 25 a1 37
Onions, Kentucky, per barrel	.... a3 75
Onions, Virginia and Maryland, per barrel	2 50 a2 75
Onions, Virginia and Maryland, per basket	1 25 a....
Cabbage, Long Island and New Jersey, flat Dutch, per 100	4 00 a....
Cabbage, Long Island and New Jersey, Wakefield, per 100	2 00 a3 50
Asparagus, New Jersey, per dozen bunches	1 00 a2 00
Tomatoes, Florida, per bushel crate	50 a 75
Tomatoes, Florida, per carrier	50 a1 00
Tomatoes, Savannah, per bushel crate	75 a1 00
Tomatoes, Savannah, per carrier	75 a1 25
Tomatoes, Charleston, per bushel crate	75 a1 50
Tomatoes, North Carolina, per bushel crate	75 a1 75
Tomatoes, Norfolk, per bushel crate	75 a1 75
Tomatoes, Delaware and Maryland, per carrier	75 a1 50
Tomatoes, Upper New Jersey, per box	1 50 a2 25
Tomatoes, south New Jersey, per box	1 25 a1 75
Squash, Long Island, white, per barrel	75 a....
Squash, Long Island, crook-neck, per barrel	75 a1 00
String beans, Maryland, wax, per basket	50 a1 00
String beans, Long Island, per bag	75 a1 00
String beans, New Jersey, per basket	75 a1 00
Cucumbers, Norfolk, per crate	50 a 75
Cucumbers, North Carolina, per crate	50 a 75
Cucumbers, Charleston, per basket	75 a1 00
Cucumbers, Charleston, per crate	60 a 90
Green peas, Long Island, per bag	50 a1 00
Green peas, New Jersey, per bag	50 a1 00
Eggplant, per barrel crate	2 00 a4 00
Beets, New Jersey, per 100 bunches	1 00 a1 25
Beets, Long Island, per 100 bunches	1 00 a1 25
Green corn, New Jersey, per 100	75 a1 25
Green corn, North Carolina, per 100	75 a1 50

SUNDRIES.

Beeswax, Western, pure, per pound	26 a 27
Beeswax, Southern, pure, per pound	27 a 28
Beeswax, West Indies, per pound	26 a ..
Maple Sugar, new, per pound	7 a 8
Maple sugar, old, in bricks, per pound	.. a 7
Maple sugar, old, in tubs, per pound	5½a 6½
Maple sirup, per gallon can	50 a 65
Honey, white clover, 1-lb boxes, per pound	10 a 12
Honey, white clover, 2-lb boxes, per pound	8 a 10
Honey, white clover, inferior, per pound	6 a 8
Honey, buckwheat, 1-lb boxes, per pound	8 a 10
Honey, buckwheat, 2-lb boxes, per pound	6 a 8
Honey, extracted, State, per pound	.. a 7½
Honey, extracted, California, per pound	7 a 7½
Honey, extracted, Southern, per gallon	60 a 70

CATTLE MARKETS.

NEW YORK, July 15.

Beeves.—Market active, firm; native steers, $4.00a5.20 per 100 pounds; Texas, $3.80a3.85; bulls and cows, $2.40a3.50. Dressed beef steady at 7¼a8¼c. per pound.

Calves.—Market very dull and a shade lower; veals, $5.50a6.15 per 100 pounds; buttermilk calves, $2.50a3.50.

Sheep and Lambs.—Market slow but steady; sheep, $4.00a5.50 per 100 pounds; lambs, $6.75a7.35. Dressed mutton steady at 10a11¼c. per pound; dressed lambs firm at 10a12½c.

Hogs.—Nominally steady; $5.00a6.30 per 100 pounds.

CHICAGO, July 15.

Cattle—Market slow; weaker; prime to extra steers, $4.50; others, 5a10c. lower; stockers, $3.00a5.00; native cows and heifers, $2.30a3.50.

Hogs—Market steady; mixed and packers, $5.50a5.80; prime heavy and butchers' weights, $5.80a5.95; assorted light, $5.85a5.90; second class, $5.50a5.70.

Sheep—Market steady; native ewes, $3.75a4.85; mixed, $4.00a4.25; wethers, $5.25a5.75; Texans, $4.15a4.50; Westerns, $4.50; lambs, $3.50a6.10.

BALTIMORE MARKETS.

BALTIMORE, July 15.—Flour dull and unchanged; Wheat firmer; No. 2, red, spot and July, 82½a83c; August, 82½a84c; September, 83a83½c; steamer, No. 2, red, 76c; Southern wheat firmer; Fultz, 72a83c; longberry, 88a84c. Corn dull; mixed, spot, July, August, and September, 53c; Southern corn, white, firmer, 64a65c; yellow, steady, 56a60c. Oats firmer; No. 2, white, Western, 39½a40c; No. 2, mixed, Western, 36a37c; Rye dull; No. 2, 78c; Hay firm and unchanged. Grain freights quiet and unchanged. Provisions strong; mess pork, $13.50; bulkmeats, loose shoulders, 7¼c; long clear and clear rib sides, 8½c; sugar-pickled shoulders, 8½c; sugar-cured smoked shoulders, 8½c; hams, small, 14½c; large, 13½c. Lard, refined, 8½c; crude, 7½c. Butter firm and unchanged. Eggs firm, 16c. Coffee steady; Rio cargoes, fair, 16½c; No 7, 13c. Sugar firm; granulated, 4 44-100c.

WASHINGTON PRODUCE MARKET.

WASHINGTON, July 15.

Flour.—Roller Process, $4.75a5.50; Extra, $3.25a3.75; Burr, $4a4.50; cornmeal, bolted, white, 55a56c.

Grain.—Wheat, Southern Fultz, 88a90c; longberry, 86a89c; common, 70a80c; corn, yellow, mixed, 55a58; white, 59a60; oats, Western, white, No. 2, 38a40; do. mixed, No. 2, 36a37.

Mill Feed.—Bran, Western, per ton, $14a15; middlings, white, per ton, $15a15.50.

Hay and Straw.—Timothy, choice, $15; mixed, $13a14.

Butter.—Creamery, Elgin, fancy, 21a22c; creamery, 17a20; fancy creamery print, 23a25; Virginia and Maryland, dairy packed, choice selections, 15a16c; do, good to prime, 12a14c; print, 15a16c; haulers' stock, 10a12c.

Cheese.—New York State factory, new, 10a11c; Western factory, 10a10½c.

Eggs.—15½a16c.

Poultry and Game.—Chickens, Spring, large, 16c; medium, 16c; hens, 12a12½c; old ducks, 8a9c; young ducks, 10c; geese, live, per pound, 6 7c.

Vegetables.—Cabbage, new, $2a4 per 100; potatoes, new, $1.75a2 per barrel; tomatoes, Eastern Branch, $1.25a2.50; beans, white, N. Y., mediums, 1.75a1.80; lima beans, per pound, 3c; black-eyed peas, per bushel, 90a$1; green corn, scarce and poor; good, 7a10c per dozen; extra, 12a15c.

Green Fruits.—Lemons, per box, $3.50a5; raspberries, per quart, 10c; bananas, per bunch, 75a $1.50; apricots, California, per box, $2; peaches, $1.50a2.50 crate; plums, California, per box, good, $2a2.50; pineapples, per 100, $5a10; watermelons, per 100, $15a22; canteloups, $2a2.50 crate.

Cured Meats and Dressed Stock.—Loins, 9½c; sausage, 7c; smoked hams, 10a12½c; smoked F. C. shoulders, 9c; smoked, narrow, 8½c; smoked blade, 8½a8 smoked breasts, 9c; corned hams, 12½c; corned shoulders, 8c; corned breasts, 8c; lard, 6¼a7c.

Furs, Wool, and Hides.—Wool, washed, 30a32c; do., unwashed, 23a25c; hides, green, 3a4c; do., dry, 6a6½c.

Sundries.—Beeswax, 24a26c; tallow, 5a5½c; honey, white clover, one pound, 10c; feathers, live geese, prime, 45a50c; do., common, 25a30c; flaxseed, per bushel, $1.40a1.50; clover seed, per pound, 13a14c; timothy seed, $1.35a1.50; vinegar, 10c; peanuts, H. P., fancy, per pound, 4½a5c; do., farmers', per pound, 3a3½c.

WOOL.

BOSTON, July 15.

A great deal more wool has has been sold this week all around, and there is talk of considerable business having been done that is not reported. It is quite certain that manufacturers have shown considerable interest in the market, are looking the stocks here over pretty carefully, and showing in a great many ways that they are in the market for wool.

We quote the selling prices of the market for leading descriptions, as follows:

	Cents.
Ohio and Pennsylvania No. 1 fleece	33 a34
Ohio and Pennsylvania X	26 a27
Ohio and Pennsylvania XX	28 a29
Ohio and Pennsylvania XX and above	29 a30
Michigan X	25 a26
Michigan No. 1	32 a33
Combing, No. 1	35 a37
Combing, No. 2	33 a35
Kentucky and Ind. ¼-blood combing	26 a27
Kentucky and Ind. ⅜-blood combing	27 a28
Missouri ¼-blood combing	25 a26
Missouri ⅜-blood combing	26 a27
Canada combing	33 a34
Delaine, Ohio fine	30 a32
Delaine, Michigan fine	28 a30
Montana fine	14 a17
Montana medium	19 a34
Wyoming fine	14 a17
Wyoming medium	18 a33
Kansas and Nebraska fine	13 a16
Kansas and Nebraska medium	16 a19
Georgia	25 a26
Texas Spring medium, 12 months	20 a22
Texas Spring fine, 12 months	18 a21
Texas Spring fine, six to eight months	17 a20
Texas Spring medium, six to eight months	21 a22
Texas Fall	14 a20
Kentucky ¼-blood clothing	24 a26
Kentucky ⅜-blood clothing	26 a27
Unwashed fine Ohio and Michigan	17 a20
Unmerchantable Ohio	20 a21
Unmerchantable Michigan	19 a20
Lambs super pulled	34 a40
Super pulled	30 a44
Extra pulled	26 a34
Canada pulled	28 a32
Western super	25 a30
California Spring	14 a24
California Fall	10 a16
Oregon east	15 a19
Oregon fancy	20 a22
Oregon fine valley	17 a21
Oregon medium valley	24 a25
Montevideo	27 a30
Australian and New Zealand	32 a41
Foreign carpet	12 a36

COTTON.

The Boston spot market is quiet and easy in tone, in sympathy with the leading markets. Middling Uplands, 7½c; Alabama, 7¾c; New Orleans and Texas, 8c.

The New York spot market is quiet and easy, with quotations as before. Low Middling Uplands, 6¾c; Middling Uplands and Alabama, 7 5-16c; New Orleans and Texas, 7 11-16c.

The Liverpool spot market is quiet and easy, with quotations as before. Uplands, 3 15-16d; New Orleans, 4 11-16d.

The decline in England was largely due to the failure of the old and highly-respected firm of Isaac Cooke & Sons, of Liverpool, which was forced to the wall by a series of swindling operations by a syndicate. This sent the price of cotton down to seven cents, and ruined the advance of the previous month.

Reports from the South are contradictory. In many sections cloudy and rainy weather, with cold nights have retarded the growth of the plant. In others, the conditions have been very favorable, and the prospects are excellent.

The exports of cotton for the 10 months ending June 30 amounted to 5,707,806 bales, which is 20,284 bales more than for the corresponding period the year before. The average weight of the bales was 498.3 pounds, and the average price about 8.9 cents per pound.

Don't let anything about the farm go to waste that can in any way be converted into manure.

The Distracted Lovers.

A Quotation Amended.

He left the wood pile and purloined the pie,
This tramp who scorned all decency and law;
He said—and gayly winked his other eye—
"I came, I conquered, but I never saw."—*New York Sun.*

Two Can Be Smart.

"Do you keep cornmeal?" inquired the man with the basket on his arm.

"No, sir," said the grocer. "We sell it. How much do you want?"

"Did I say I wanted any?" mildly asked the man with the basket.

And he went out and hunted up another grocery store where the salesmen were not quite so smart.—*Chicago Tribune.*

In The Park.

Near-sighted Lady—How neatly this shrubbery is trimmed. But there's a queer shape I never saw tried before.

Near-sighted Lady—O, my!

Improving a Dog.

Lady—Why did you have your dog's tail cut off?

Boy—To make him more affectionate.

Lady—Hem! Did that do it?

Boy—Yes'm. He can wag all the time now without getting tired.

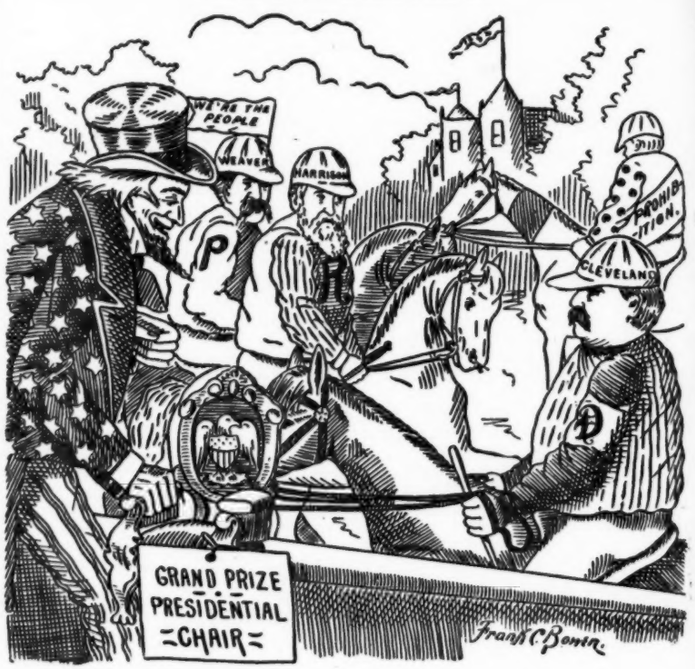
An Ignorant Woman.

Aunt Forby Low (reading)—Here's where two men went down in one of the sewers and were killed by sewer gas. What do they want gas in a sewer for, I wonder?

Uncle Si Low (in deep disgust)—To see by, of course. Do you think sewers have windows in them?—*Puck.*

Maybe the reason for putting the woman's head on one side of our coins is a gentle hint that money talks, too.—*Philadelphia Times.*

At the National Grand Stand.



Who will get the great prize?

Competitive Luxuries.

First Little Girl (just from a shoe-store)—I is got on new shoes. You ain't.

Second Little Girl (just from the bathroom)—N—o, but I bet my feets is cleaner than yourn.—*Street & Smith's Good News.*

Different Circumstances.

Tommy—Said you could lick me with one hand tied behind you, didn't you? Let's see you do it!

Jimmy—Y-yes, I guess I did say so; but I ain't got one hand tied behind me just now.—*Indianapolis Journal.*

The Home-Coming.

Doctor—So you have been all over Europe, and seen all its gathered treasures of art and history? How I envy you. Tell me what impressed you most.

"O, I saw the dearest little poodles in Paris; such eyes and such hair. O, they were just too lovely for anything. But those mean, nasty men wouldn't let me take them into the cars, and so I couldn't bring any home with me. But I'm just dying to get back and see the darlings!"

Marriage will continue to be a failure till our young women learn to support a man in the style he has always been accustomed to.—*Elmira Gazette.*

Unlooked-For Pleasure.

"Miss Gasket, I love you dearly," confessed young Mr. Smithers.

"I am so glad," replied Miss Gasket, fervently.

"You make me intensely happy," he replied.

"I hope I shall continue to do so, for I am to be your stepmother."—*Harper's Bazar.*

Deserved a Medal.

Sharpe—I saved a girl's life this morning.

Wooden—Why, how was that?

Sharpe—Well I was smoking on the hotel veranda and she said: "Pardon me, sir, but that cigaret is killing me." So I threw it away and smoked another.—*Boston Courier.*

Science to the Rescue.

Housekeeper—Has any way been discovered to kill the pests that destroy carpets?

Great Scientist—Yes, madam. Take up the carpets, hang them on a line, and beat them with a heavy stick.

"Will that kill the insects?"

"Yes, madam, if you hit them."—*New York Weekly.*

Before Pa Let Loose.

Johnnie (calling down stairs)—Oh, ma, pa has lost his collar button.

Ma—Well, hurry and take the parrot out of the room and hang the cage in the hall.—*Detroit Free Press.*

Whittlings.

"You belong to a baseball club," recently said a smart Aleck of a lawyer to a uniformed Salvation Army man, who was a witness in court. "Yes," replied the man, "I belong to a club that bats the devil and strikes him out."

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The last one printed, which is just out, is for the crop year of 1890.

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The articles embraced in the volume comprise the latest information relative to the Propagation of the Silk Worm; Diseases of Cattle and Swine; Article on Irrigation; Mushroom Culture; Statistics of Cereals and Cotton; Reports of Field Experiments in Treatment of the Disease of Plants; Cultivation of the Apple, Peach and Small Fruits; Article on Nut Culture.

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The folded maps and charts show the production of wheat, corn and cotton for 10 years, and the results of artesian irrigation. The best idea of the scope of this magnificent work may be gathered from the following list of the illustrations:

Report of the Chief of the Bureau of Animal Industry:
- Diagram A. Average price of hogs and home consumption of hog products per capita.
- B. Average price of hogs, compared with the total production of hog products per capita, and the price of corn.
- C. Production of corn per capita, and the average price per bushel on farms, December 1.

Report of the Entomologist:
- Plate I. New species of Icerya,
- II. The Leefeld fumigator,
- III. Ceratitis capitata and Nephelodes violans.
- IV. Parasites of Nephelodes and Hæmatobia.
- V. Rose chafer and green-striped maple worm.
- VI. State Capitol at Lincoln, Neb., showing trees defoliated by the green-striped maple worm.
- VII. Black scale and Lucilia cæsar.

Report of the Chief of the Silk Section:
- Plate I. Various races of cocoons.
- II. Various races of cocoons.
- III. Various races of cocoons.
- IV. Pruning of mulberry trees, half-standard tree.
- V. Half-standard mulberry tree.
- VI. Pruning of mulberry trees, dwarf.

Report of the Statistician:
- Map I. Corn (maize). Values and yields per acre.
- II. Wheat. Values and yields per acre.
- III. Cotton. Values and yields per acre.

Report of the Microscopist:
- Plate I. Eight edible mushrooms common to the United States. Second series.
- II. Twelve poisonous mushrooms.
- III. Mushroom beds in cellar.
- IV. Mushroom beds in market gardens.
- V. Mushroom house.
- VI. Microscopic researches in food fats.
- VII. Nitrate of silver test of food and medicinal oils.
- VIII. Nitrate of silver test of food and medicinal oils.
- IX. Nitrate of silver test of food and medicinal oils.
- X. Nitrate of silver test of food and medicinal oils.
- XI. Species of mushrooms.

Report of the Botanist:
- Plate I. Ambrosia trifida.
- II. Hieracium aurantiacum.
- III. Linaria vulgaris.
- IV. Cuscuta trifolii.
- V. Plantago lanceolata.
- VI. Cenchrus tribuloides.
- VII. Pennisetum typhoideum.
- VIII. Eragrostis abyssinica.

Report of the Chief of the Division of Vegetable Pathology:
- Plate I. Hollyhock anthracnose.
- II. Anthracnose of cotton.
- III. Ripe rot of grapes and apples.
- IV. Treatment of pear leaf blight (Bordeaux mixture).
- V. Treatment of pear leaf blight (ammoniacal solution, coppe carbonate).

Report of the Pomologist:
- Plate I. Wild and cultivated pecans.
- II. Pecan tree, in orchard at Ocean Springs, Miss.
- III. Switzer apple.
- IV. Banquet Strawberry.
- V. Brilliant grape.
- VI. Pineapple field at Lake Worth, Fla.
- VII. Zengi.
- VIII. Tsuru.
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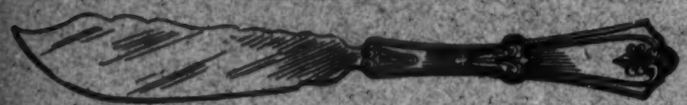

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